

## APPROVAL SHEET

Title of Dissertation: Influences on Tobacco Control Funding Decisions:  
Explaining State Variation in Appropriations

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## 14. ABSTRACT

This policy research on state tobacco control funding decisions provides a conceptual framework and quantitative model for explaining this outcome. Studying resource allocation for tobacco control is important because of the impact increased funding can have on health outcomes. One published study on state variation in tobacco control appropriations reported little explanatory value of tobacco burden of disease factors. The current research used both qualitative and quantitative methods to identify factors that were useful in explaining this outcome following the state settlements with the tobacco industry. Key informant interviews with state policy experts yielded a comprehensive list of 26 influences on state tobacco control funding decisions. In a modified Delphi process, experts completed ratings of importance and the 11 factors that received the highest ratings were: budget situation, state priorities, tobacco industry economic and political activity, the role of the governor, the role of a legislator who champions tobacco control, public opinion, dedicated tobacco control funds, tobacco control advocacy, leadership, and coalitions. A conceptual diagram was developed to portray the relationships of these factors with state tobacco control funding. To test the explanatory value of these factors, a multiple linear regression model was developed with existing cross-sectional data on all 50 states. Five measures were significantly associated with the outcome and explained 49% of the variance. The 26 states with Gross State Product from tobacco had lower allocations for tobacco control (Tobacco Economy). The 27 states with laws preempting stricter local ordinances were less likely to allocate funds for tobacco control (Tobacco Industry Political Activity). States that had Democratic governors with a high degree of executive authority allocated more funding for tobacco control (Role of Governor). Citizen liberalism was positively associated with higher allocations for tobacco control (Public Opinion). These results imply that a strong scientific case for tobacco control is not sufficient to secure prevention funding at the state government level. Attention to political and economic aspects of the state budget process could lead to increased tobacco control funding. Further research is needed to determine whether these factors are predictive of appropriations in future years and how the factors can be used to influence future funding decisions.

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## **ABSTRACT**

Title of Dissertation: Influences on Tobacco Control Funding Decisions: Explaining State Variation in Appropriations

Joy Austin-Lane, Doctor of Public Health, 2003

Dissertation directed by: Galen L. Barbour, M.D., Professor and Division Director,  
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This policy research on state tobacco control funding decisions provides a conceptual framework and quantitative model for explaining this outcome. Studying resource allocation for tobacco control is important because of the impact increased funding can have on health outcomes. One published study on state variation in tobacco control appropriations reported little explanatory value of tobacco burden of disease factors. The current research used both qualitative and quantitative methods to identify factors that were useful in explaining this outcome following the state settlements with the tobacco industry.

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**INFLUENCES ON TOBACCO CONTROL FUNDING DECISIONS:  
EXPLAINING STATE VARIATION IN APPROPRIATIONS**

by

Joy L. Austin-Lane

Dissertation submitted to the Faculty of the

Department of Preventive Medicine and Biometrics

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Doctor of Public Health 2003

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## **DEDICATION**

I dedicate this work to my loving partner, Christopher Emery Austin-Lane.

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## **INTRODUCTION**

### **Health and Economic Impact of Tobacco Use**

If priorities in health policy were based on exposures that caused the most harm, then tobacco use would top the list. In the United States, tobacco use was estimated in the 1990s to cause 442,000 premature deaths annually, making it the single most preventable cause of morbidity and mortality (CDC, 2002; see Appendix A for acronym definitions). One in every five deaths in this country is attributable to smoking (CDC, 2002). Tobacco use increases the risk of dying from chronic lung disease, coronary heart disease, and stroke, as well as cancer of the lungs, larynx, esophagus, mouth, and bladder. Morbidity associated with tobacco use includes hypertension, diabetes, emphysema, angina, and dental problems (CDC, 2001). Annual death rates from smoking vary by state with a high of 414 per 100,000 in Nevada to a low of 160 per 100,000 in Utah (CDC, 2002).

Related to the detrimental health effects of tobacco use, direct medical costs in the United States amount to \$75 billion a year (CDC, 2002). Indirect public costs of tobacco use are estimated at \$155 billion annually and include lost productivity, costs associated with fires, and the health effects of exposure to secondhand smoke (CDC, 2002). Therefore, the estimated annual burden of tobacco use in the United States is \$230 billion, three times the amount of direct medical costs. Federal, state, and local governments bear a substantial portion of this burden and have a vested interest in reducing it.

Government health care spending for smoking-related illnesses continues to rise along with health care and long-term care costs in general (Kane et al., 1998; Miller et al.,

1998; Martin, Whittle & Levit, 2001). The federal government spends \$20 billion a year to treat smoking-attributable illnesses for health care beneficiaries in Medicare, the Federal Employees Health Benefits Program, the Department of Defense, the Department of Veterans' Affairs, and the Indian Health Service (Max, 2001). In addition, federal and state governments share costs for the Medicaid program, covering health care for low-income residents.

Medicaid spending grew at an annual rate of 9.8% on average during the 1990s (HCFA, 2000). In 1998, states spent an average of \$4,307 per person served by the Medicaid program. The federal government pays 57% of total program spending on average across states (HCFA, 2000). Total program spending is expected to increase to \$444 billion by 2010, according to the President's Fiscal Year 2001 budget. Given increasing government expenditures on health care, health promotion programs are recommended to prevent morbidity and mortality and reduce costs in the future (Aldana, 2001; Harris, Holman, Carande-Kulis, 2001). However, health promotion strategies have not been widely adopted by governments to reduce future costs for various reasons (Breslow, 2001; Gordon & Lapin, 2001; McGinnis, 2001; Feldstein, 1994; Williams & Torrens, 2002).

On the other side, the amount the tobacco industry spends to encourage use of tobacco products is also increasing. Tobacco advertising and promotional expenditures rose to \$11.2 billion in 2001 or \$30.7 million per day (FTC, 2003). Research on the link between industry promotion and consumer choices provides evidence that tobacco companies are competing for market share among minors even though state and federal laws restrict tobacco use to the adult population (Pollay et al., 1996; Jacobson et al.,

2001; Chaloupka et al., 2002; Wakefield et al., 2002). Industry promotion of tobacco products affects adolescent and adult smoking behavior in some situations and may partly explain why efforts to reduce tobacco use have fallen short of national public health goals. One study found a dose-response relationship between the number of promotional items owned and the amount of tobacco consumed (Sargent, Dalton, & Beach, 2000).

One method of partially preventing the effect of advertising on smoking behavior could be achieved by banning advertising. Researchers used modeling to estimate the effect of interventions and found that a comprehensive set of advertising bans can reduce consumption by 6.3% but that a limited set of advertising bans has no effect on consumption (Saffer & Chaloupka, 1999). As the Surgeon General reported in 2000, the reasons smoking norms and behaviors are not yielding more quickly to the growing evidence of adverse health effects are complex, but are attributable in part to the industry's continuing advertising and public relations campaigns (Jacobson et al., 2001; US Surgeon General, 2000).

### **Government Intervention to Reduce Tobacco Use**

Opposition to tobacco use has been present in many cultures for centuries. Government regulation of tobacco has been initiated for moral, aesthetic, pragmatic as well as health reasons (Kiernan, 1991; Sullum, 1998). The British Monarch King James I published a treatise on tobacco in 1604 in which he connected smoking, a "loathsome" custom, with moral degeneracy (Kluger, 1997). Even before tobacco came under scientific scrutiny, there were calls from the medical and religious communities in the United States for government intervention. In the 1800s, smoking in public was prohibited by a Boston ordinance because of the danger of fire to wooden structures.



Doctors in the 1850s associated tobacco use with increases in crime, nervous paralysis, loss of intellectual capacity, and vision impairment. Various justifications have been given for government regulation of tobacco.

In the United States, tobacco control efforts by the federal government have waxed and waned over time (IOM, 1994; Rabin & Sugarman, 2001; Simonich, 1991). Since 1964, with the release of the first Surgeon General's report on tobacco use, the federal government has steadily increased emphasis on the public health impact of tobacco and resource allocation for smoking prevention and research. The 1964 report documented the mounting scientific evidence on the disease burden from tobacco (US Surgeon General, 1964). Now federal tobacco control is a core public health function with annual funding of national prevention programs, basic and applied research, technical assistance, and state-based infrastructure (Redhead & Austin-Lane, 1998).

The federal government has continued to provide leadership in the United States for reducing tobacco use through the Healthy People 2000 and 2010 initiatives (national health goals and objectives established through the US Department of Health and Human Services). The Department of Defense (DoD) also set similar goals and objectives for decreasing tobacco use in the military from an average smoking prevalence of 42% in 1988 to 20% by 2000 and elimination of tobacco use in the military by 2010 (DHHS, 1991; DHHS, 2000). Another Healthy People 2000 goal was to increase to 50 the number of states (from the 1989 baseline of 12 states) with plans to reduce tobacco use among youth (DHHS, 1991). DoD stands to benefit through improved military readiness and decreased health care expenditures for military members and their dependents. By setting concrete objectives to measure progress, ambitious federal programs have

prompted intensive efforts in states to reduce tobacco use in a short period of time.

However, state activity has not resulted in these objectives being met.

In 2000, the median prevalence of smoking among adults (aged 18 and older) in all states was 23.3%, far short of the national goal of reducing adult smoking prevalence to 15% (CDC, 2002; Mendez & Warner, 2000). However, this represents a substantial reduction from the 1987 baseline smoking prevalence of 29% among adults aged 20 and older. The military rates have decreased dramatically as well but fall short of the military goals. In order to understand why public health goals are not being met, this study focused on state tobacco control policy as represented by funding for prevention activities.

States have become a major focus for studies of tobacco control policy-making and have been described as the new laboratory for research in this area (US Surgeon General, 2000). Important changes took place in the 1980s prompting state and local governments to become more involved in tobacco control policymaking as authority devolved from the federal to the state level under the Reagan Administration (Furner, 1996; McGowan, 1995; Monardi & Glantz, 1998). This reform of our federalist system had several implications for state governments. More money began flowing to states from the federal government in the form of block grants. Also, state authority for setting social and economic policies increased (Furner, 1996). In addition, state legislators began playing a larger role in reviewing and modifying budgets, whereas in the past, legislators had mainly followed the lead of state agencies and the governor (Duncombe & Kinney, 1986). Therefore, it is necessary to understand the overall government context in order to explain state tobacco control policy making.

In the United States, public policies are made within a system comprised of federal, state, county, and municipal levels of government. Federalism is the system of rules for the division of public policy responsibilities among a number of autonomous governmental agencies (Anton, 1989; Dye, 1990). These rules define the scope of authority available to the autonomous agencies and provide a framework to govern relationships between and among agencies (Anton, 1989). The agencies remain autonomous in that they levy their own taxes and select their own officials but they are also linked together by rules that govern common actions (Anton, 1989).

As an example, primary authority for public education resides at the county level, but state and federal governments may provide funding and mandates affecting the way school systems are managed. An even more basic example of overlapping jurisdictions can be seen in roadways. A continuous road may traverse federal parkland, become a state highway, and continue on as the main street of a small town. Federal, state, and local governments separately make decisions about and fund changes to the roadway. Collaboration may occur when improvements to the roadway are desired, but it is common for jurisdictions to disagree about improvements because of competing priorities for the roadway. When the issue is population health, all levels of government benefit from decreased morbidity and medical costs, as well as increased worker productivity. One area of disagreement that remains is which level of government should set policy and pay for public health investment (Public Health Foundation, 1995).

### **Comprehensive State Programs to Reduce Tobacco Use**

Before examining government funding for tobacco control, it is necessary to point out where funding fits in the public health context of tobacco use. The agent-host-vector-

environment model is commonly used in public health to study health problems and has been applied to tobacco use (Orleans & Slade, 1993; Giovino, 2002). Figure 1 depicts the tobacco product as the agent, the consumer of the product as the host, and tobacco companies and consumers as vectors. These entities are affected by the environment, which is comprised of culture, history, politics, law, the media, and interpersonal relationships, among other factors (Orleans & Slade, 1993; Giovino, 2002). Tobacco use is similar to other health habits in that it is acquired within social groups and is supported by powerful elements in the general society (Becker, 1993). This model was adapted to include the state budget process and the influence of tobacco control efforts on all aspects of the problem environment in which tobacco use occurs. As the arrows indicate, changing the environment interrupts the connection between agent-host, agent-vector, and host-vector; the goal of tobacco control and prevention activities is disrupting agent, host, and vector relationships.

A public health approach to address health problems has gradually been instituted in the US. Public health gained momentum with sanitary engineering and medical breakthroughs in the 19<sup>th</sup> century. By the 1930s, public health infrastructure was institutionalized in the US at the municipal, state and national levels of government. “There was wide recognition that the prevention and treatment of many health problems demanded a public response: government intervention was needed to direct, regulate, or encourage actions to deal with social conditions that affected the public at large” (Bertram et al., 1996, p. 190). Around this same time, the medical establishment took center stage, drawing on societal values of privatization and individualism. The preeminence and political power of medicine served to marginalize public health. Public

health advocates retreated into research endeavors, avoiding activism and public programs that would require major social changes (Bertram et al., 1996).

By providing new ways of identifying, curing, and preventing contagious diseases, science was seen as the best way for health departments to promote health. “Not only were these public health professionals reluctant to challenge the medical profession, they were far more hesitant than were reform-minded civic groups and volunteer agencies to engage in the rough and tumble of politics and to push for expensive programs of broader social reform” (Bertram et al., 1996, p. 191). The institutions that were put in place provide community-based infrastructure and connect networks of public health professionals. However, the field of public health did not attain the political clout enjoyed by other medical professions.

A hallmark of the public health approach is concern for prevention as well as treatment. Prevention improves individual health and is less expensive for society as a whole, though effective treatments are important when prevention fails. Prevention approaches to reduce tobacco use can be divided into five categories: educational, clinical, regulatory, economic, and comprehensive (US Surgeon General, 2000). Educational and clinical methods are primarily used to treat individuals. Regulatory, economic and comprehensive interventions alter social norms around tobacco use and change the environment in which it occurs. Comprehensive programs include school and community prevention programs to reduce initiation and consumption of tobacco products, chronic disease prevention at the state and local levels, and statewide policy initiatives and media campaigns (Prohaska, Peters & Warren, 2000). The individual and

environmental approaches in combination have been found to be effective in changing social norms and reducing tobacco use (US Surgeon General, 2000).

The public health approach recognizes that tobacco use may be caused by social conditions over which individuals have limited control and that individual behaviors entail social consequences. Tobacco use and addiction are public, not merely individual, problems both because their causes are rooted in social and cultural conditions and because their consequences harm families and communities as well as individuals. While individual choice is a factor in tobacco use, the social environment shapes and constrains choice. The social environment includes peer and family tobacco use, levels of social support, and the social norms surrounding tobacco use. Individuals must be empowered to change their immediate social environment, but changing the larger social environment is beyond what individual doctors or patients can do alone. Changing the larger environment requires public policy action (Bertram et al., 1996).

A public health approach to tobacco policy is valuable given the magnitude of the problem, the difficulties in changing behavior, and the pervasive disease patterns that result from tobacco use (Thompson, 1994; Last & Wallace, 1992; Becker, 1993; Alciati et al., 1998). Government support and regulation are necessary to help individuals overcome their social environment that encourages tobacco use (Bertram et al., 1996). Changing the social, economic, and regulatory environment in which health behaviors occur is more effective for population behavior change than is the traditional approach of health education and clinical intervention (Green & Kreuter, 1999; US Surgeon General, 2000; Stokols, 1992).

Policy approaches to behavior change and disease prevention have been used with great success to control the spread of infectious diseases but less often to address the health behaviors that contribute to chronic diseases (Last & Wallace, 1992). Government reluctance to intervene may stem from the value Western culture has placed on individual freedom and the importance of personal responsibility for success or failure (Becker, 1993). Government tobacco control efforts have been portrayed as limiting individual freedom and choice. However, environmental interventions to reduce tobacco use may actually increase individual freedom by balancing out the amount spent on promotion of unhealthy selections (Last & Wallace, 1992). As government involvement in economic regulation controls harm to individual financial well-being, tobacco control as a form of social regulation can be understood as controlling harm to our physical well-being (Reagan, 1987).

In the 1980s, state governments began responding to the public concerns and public costs associated with tobacco use. Several states pioneered comprehensive programs to reduce tobacco use. Most notable were California in 1988 and Massachusetts in 1992, where successful ballot initiatives increased excise taxes and funded comprehensive state tobacco control programs (IOM, 1994; Pierce-Lavin & Geller, 1998). As of 2000, ballot initiatives had succeeded in six states (AZ, CA, MA, ME, MN, OR) directing annual allocations of a portion of state tobacco excise taxes for tobacco control programs (ALA, 2001; US Surgeon General, 2000).

Ballot initiatives are considered a form of direct democracy, because voters accept or reject a law directly instead of leaving the decision to state legislators. Although state elected officials are averse to raising taxes themselves, they want freedom to use the new

revenue as they see fit, given their knowledge of state needs. When ballot initiatives constrain how state revenue can be used, the state legislature may interpret the law in ways that circumvent constraints.

### **Public Health Impact of State Tobacco Control Programs**

In spite of the tendency for state legislatures to resist ballot initiative constraints, several states have operated tobacco control programs for many years, enabling researchers to identify the most effective approaches to tobacco control and prevention as discussed above (Jacobson et al., 2001; US Surgeon General, 2000). Comprehensive state tobacco control programs that use multi-message, multi-channel approaches provide evidence that states can reduce their burden of disease and smoking-related health care costs (Lantz et al., 2000; Glynn, 1991; Willemsen & De Zwart, 1999; Pierce et al., 1998; Fichtenberg & Glantz, 2000; US Surgeon General, 2000; CDC, 1999; Farrelly, Pechacek, & Chaloupka, 2003). In 2000, the Institute of Medicine confirmed the effective components of comprehensive state programs and indicated that states were not acting in the public interest given the health burden from tobacco use (NCPB, 2000).

Based on the success of comprehensive programs in California, Massachusetts, Oregon and Florida, the Office on Smoking and Health at CDC codified “best practice” guidelines to facilitate implementation of similar comprehensive programs in other states (CDC, 1999). They also provided estimates of ideal funding levels, that have been used as a benchmark to evaluate state tobacco control funding (Gross et al., 2002). Table 1 lists the components of a program deemed to be comprehensive and the formulas used to calculate ideal state funding levels. Several reports support this summary of evidence-based activities that are important for effective comprehensive state tobacco control



programs and the funding needed to implement state and local programs (CDC, 1999; NCPB, 2000; NACCHO, 2000).

The public health impact of such programs has been seen in California, Massachusetts, and other states that instituted comprehensive tobacco control programs. These states decreased their tobacco use rates more rapidly compared to states with less tobacco control activity. California's program was associated with a decline in cigarette consumption 50% greater than the national average (Pierce et al., 1998). Massachusetts' tobacco control program preceded a 15% decline in adult smoking compared to little change nationally (Biener, Harris & Hamilton, 2000). Comparing states with comprehensive programs to states with less tobacco control activity provides strong evidence that intensification of tobacco control efforts is related to reduction in tobacco use (Bitton, Fichtenberg & Glantz, 2001).

Further evidence for the public health impact of state tobacco control programs can be seen by examining the link between price and tobacco use in states with and without comprehensive tobacco control programs. Generally, as prices for tobacco products increase, sales and consumption decrease (Grossman & Chaloupka, 1997; Wasserman et al., 1991; US Surgeon General, 2000). In states with strong tobacco control efforts, there are some unexpected differences in this relationship (NCPB, 2000). For instance, when Oregon increased the state excise tax on tobacco products to fund tobacco control initiatives, cigarette consumption dropped by over 11%, which is 5% more than would be expected from the price increases alone. Similarly in Alaska, California, and Florida, the decreases in tobacco use have exceeded what would be expected from price increases alone. When cigarette prices dropped nationwide in the

mid 1990s, consumption rose in states with little or no tobacco control but stayed the same in California and Massachusetts. Tobacco control measures seem to augment the effect of price increases and suppress the effect of price cuts (NCPB, 2000).

Compelling support for comprehensive tobacco control programs comes from evidence that population health indicators improve as a result. Fichtenberg and Glantz (2000) found that, over an eight-year period, California's tobacco control program was associated with reduced cigarette consumption and with reduced mortality from heart disease. Well-funded state and local programs can reduce tobacco use and improve health outcomes. The link between state funding of prevention efforts and improved population health can be seen for other behavioral health issues as well. A study of alcoholism treatment in all 50 states found that increased spending led to lower cirrhosis mortality rates (Smart, Mann, & Lee, 1996). These findings support the notion that state prevention funding leads to improved population health.

In sum, public health officials, advocacy groups, and the general public have called for comprehensive programs to prevent tobacco use, given its attendant morbidity and mortality and the effective prevention methods available (CDC, 2001; US Surgeon General, 2000; CTFK, 2002). Successful state tobacco control programs provide an important counterweight to the promotional efforts of the tobacco industry and foster a powerful nonsmoking norm (US Surgeon General, 2000). The tools of public health that have been brought to bear on tobacco use by different levels of government have not been adequate to reach national goals (DHHS, 2000). The lack of progress is more a failure to fund evidence-based programs and implement proven strategies than it is a lack of knowledge about what to do (US Surgeon General, 2000).

## **State Settlements with the Tobacco Industry**

Funding comprehensive tobacco control programs posed a problem for state government officials, because of the expense of effective programs. State officials turned their attention to cultivating a new source of revenue, from the tobacco industry itself (Jacobson & Warner, 1999). In 1994, state attorneys general began filing class-action lawsuits against the major tobacco companies seeking reimbursement for Medicaid expenditures on smoking-related illnesses (Redhead, 1999).

Historically, lawsuits against the tobacco industry had been brought forth largely by individuals and classes of individual plaintiffs in product liability cases (Daynard et al., 1992). After many years of losing individual liability claims, the public's legal standing improved in the late 1980s. The 1988 US Surgeon General's Report established that nicotine addiction was the basis for tobacco use. Researchers documented how repeated use of tobacco led to nicotine addiction, with concomitant changes in a smoker's psychobiology that sustained this addiction. The 1988 report provided a firm foundation for countering the industry's claims that people freely chose to smoke (Kluger, 1997). This report was released in the closing stages of the Cippilone trial, which may have contributed to its being the first award for the plaintiff in a tobacco liability lawsuit (Kluger, 1997). Shortly after the release of the 1988 US Surgeon General's Report, whistleblowers leaked documents revealing tobacco industry officials' knowledge of the addictive properties of tobacco, its detrimental effects on health, and practices of marketing tobacco to minors.

The state Medicaid lawsuits were resolved relatively quickly because of these changes in the legal environment. In addition, the Liggett Group, a major tobacco

manufacturing company named in the state Medicaid lawsuits, broke ranks with the other companies to settle with the states, which marked a turning point in the industry's impenetrability. Following this, the other major cigarette manufacturers began actively negotiating with state and federal governments in an attempt to resolve the state lawsuits en masse. Four individual state lawsuits proceeded to trial in 1997 and 1998, namely Mississippi, Florida, Texas, and Minnesota, but the tobacco companies entered into settlement agreements with these four states before jury decisions were made (Redhead, 1999). These cases resulted in the industry releasing additional documents, changing their promotion practices somewhat, and initiating large annual payments to these states.

In November 1998, several state attorneys general announced an agreement with the tobacco companies to resolve the remaining lawsuits. This agreement became known as the Master Settlement Agreement (MSA) and resulted in large annual payments to states beginning in November 1999 (MSA, 2000). Forty-six states, five US territories, and the District of Columbia signed on to the MSA; the other four states retained their individual state settlement agreements. The MSA also resulted in concessions from the industry to limit promotion of their products and to fund an independent foundation that would carry out national tobacco-use prevention activities. The American Legacy Foundation was endowed with money from the settlement agreement and presently maintains a national media campaign as well as numerous advocacy, research, and evaluation projects.

Tobacco companies make settlement payments each year, providing new, unencumbered revenue to state governments. State officials do not have to raise taxes or cut services for this additional revenue, but they must decide how this money will be

appropriated through their individual budget approval processes (Rubin, 1997; Wildavsky, 2001). The yield to the 50 states from these settlements was estimated at \$246 billion in the first 25 years (HPTS, 2001). While the state Medicaid lawsuits resulted in the largest class-action settlement in US history, the estimated payments over 25 years are roughly equal to the societal burden of tobacco use in one year (\$230 billion from direct medical and indirect costs combined).

Under the Medicaid statute, states were required to return the federal government's share of any recoveries of Medicaid expenditures from liable third parties. However, because of strong opposition from governors and attorneys general, federal officials waived any claim to MSA funds (Godshall, 1999). On May 21, 1999, President Clinton signed the FY1999 Emergency Supplemental Appropriations Act (P.L. 106-31) that allowed states to keep the entire MSA payment without any restriction on spending (Redhead, 1999). The Clinton Administration and Congress did not pursue this opportunity to earmark a portion of the state settlements for tobacco control. The decentralized decision-making that followed in states did not establish a uniform priority for public health or tobacco use prevention.

### **Allocation of State Settlement Revenue**

Several reports have documented how states are allocating funds after receiving settlement payments (CTFK, 2002; ALA, 2001; HPTS, 2001; HPTS, 2002; CDC, 2001; CDC, 2002; NCI, 2000; GAO, 2001). In 2001, the General Accounting Office of the US Congress (GAO) reported on how the 46 MSA states were using tobacco settlement money. Interviews with state-level officials and analyses of budgets in the 46 MSA states revealed that roughly 7% of settlement payments were used to finance anti-

smoking programs in FY 2001 (GAO, 2001). This finding is consistent with the estimates of other organizations that states allocated on average 5% of settlement income for tobacco control and prevention activities, or \$1.5 billion of the \$29.4 billion states have received over three years of settlement payments (CDC, 2002; CTFK, 2002; HPTS, 2001; HPTS, 2002).

There is wide variability in the commitment states have been making to tobacco control since the settlements with the tobacco industry. Table 2 presents state-by-state information on tobacco control funding. In FY 2002, states received settlement payments averaging \$32.88 per capita. Based on CDC FY02 tobacco control funding amounts (which include funding from all sources—settlement payments, dedicated excise taxes, federal funds, and private sources), states allocated on average \$4.16 per capita for tobacco control and prevention activities. Per capita tobacco control funding ranged from a low of \$0.33 in Tennessee to a high of \$19.31 in Hawaii. In addition, states allocated settlement funds for other priorities, including health services, long-term care, research, education, tobacco farming, budget reserves, tax relief, debt reduction and infrastructure projects (HPTS, 2002).

States have legislated various ways to accommodate the settlement payments and manage the funds. Some states have set up special accounts (separate from the General Fund) for some or all of the settlement payments. Allocations to trust funds (principal allocation and accrued interest can be spent) or to endowments (only interest accrued can be spent) place money in accounts separate from the general fund and may earmark the money for certain uses. However, other states have securitized settlement payments, choosing to issue bonds and sell the revenue stream of future payments in exchange for a

lump sum amount (HPTS, 2002). Often securitization has been used to remedy budget deficits for one fiscal year.

The total annual payment paid by tobacco companies to states for the MSA is determined by adjusting a base amount by the consumer price index and the volume of tobacco products shipped from manufacturers each year (HPTS, 2001). States receive fixed percentages of the total annual payment. These percentages were negotiated during the settlement discussions, are based on a state's total historical healthcare spending and smoking rate, and do not change. State 1993 Medicaid expenditures for treatment of smoking-related illnesses factored heavily into determining these fixed percentages (HPTS, 2001; Miller et al., 1998).

There appears to be very little correlation between state smoking rates and tobacco control funding, as illustrated by the following example. Nevada has the second highest adult smoking rate in the US (29% on average for 1996-2000, second only to Kentucky's 30.7%) and Utah has the lowest (14% on average for 1996-2000). But Utah allocated \$0.66 per capita in FY 2002 for tobacco control and prevention programs, whereas Nevada allocated only \$0.48 per capita (see Table 2). These states have similar population sizes, tobacco excise tax rates, and recommended amounts for effective prevention (CDC low and high state estimates to fund "best practices" - Utah \$7 to \$16 per capita; Nevada \$8 to \$19 per capita).

It is unclear what factors account for the marked differences among states in tobacco control appropriations. Only one published study has examined the determinants of state funding for tobacco control following the state settlement agreements. Gross et al. (2002) studied possible determinants of state allocations for tobacco control in fiscal

year 2001 using data from 45 states (HPTS, 2001). Their study revealed few associations with various state-level health and economic variables, including smoking-related death rates, lung cancer death rates, per capita smoking-attributable Medicaid expenditures, per capita state Medicaid expenditures, cigarette excise taxes, proportion of the population without health insurance, and per capita personal income.

Gross and colleagues (2002) identified two factors that were associated with state per capita allocations for tobacco control: states that produced tobacco or had high smoking rates tended to invest less in tobacco control. However, in a multiple regression model, these associations explained little variance in the dependent variable (personal communication with Cary Gross, November 4, 2002). Additional research that captured the complexity of the appropriations process seemed necessary to increase understanding of the influences on tobacco control funding.

### **Theories of policy-making**

Various theoretical approaches to public policy were considered to guide the current research, including rational, political, and systems theories. Several theorists provide models especially applicable to this research. Kingdon (1995) explains policy formation through the interconnection of three independent streams: problems, policies, and politics. Stone's (2002) approach to policy analysis is based on the premise that politics is an essential and valuable system of social interaction, though not rational nor linear. Baumgartner and Jones (1993) connect the political model with complexity and systems theory. Wildavsky (2001) links systems theory to its implications for policy analysis. These theories provided structure for research on state policy decisions and the determinants of state tobacco control funding.



Public policymaking can be conceptualized as entailing four stages: setting the political agenda for problems that need to be addressed; specifying the alternative solutions to choose from; making an authoritative choice among the alternatives, such as by legislative vote; and implementing the solution to address the problem (Kingdon, 1995; Baumgartner & Jones, 1993; Simon, 1997). Figure 2 provides a basic model to understand policy output. The model shows how policy outputs result from a dynamic interplay between inputs from the environment and political processes, and have subsequent consequences on inputs and the political process (Hofferbert, 1974). Implementation, the fourth stage after an authoritative decision is made, is critically important in policy matters but is beyond the scope of this study.

Decision-making can be explained using a variety of models. Researchers have studied policy formation and how decision-makers narrow their choices from a large set of alternatives to a few, as well as how agendas change over time (Kingdon, 1995; Baumgartner & Jones, 1993; Stone, 2002; Rochefort & Cobb, 1994; Bertram et al., 1996; Mintrom, 2000). Kingdon's (1995) three streams (problems, policies, and politics) function independently of each other with different experts, rules of operation, and sentinel events. A particular policy is advanced when these three streams interconnect. If the streams coalesce around a certain policy to address a current problem, then that policy may advance to the political agenda. If the policy was already on the agenda, then it may become a higher priority.

Kingdon (1995) used the three streams model to analyze the Carter Administration's attempt to put national health insurance on the policy agenda. The policy and problem streams came together to some extent. Substantial numbers of

Americans were uninsured, health-care costs were escalating, and the quality of medical care was unsatisfactory. Many policy experts supported national health insurance to address these problems. However, the proposal failed for political reasons, including budget concerns in the executive branch, the public's preference for smaller government, the perception that the national plan ran contrary to smaller government, and the failure to form a unified coalition around one health insurance proposal (Kingdon, 1995).

Policy outputs result from a dynamic interplay of complex influences. Successful legislation is the best possible solution at the time of its passage (Feldstein, 1996). When examined over time, the process of legislative action appears incremental or iterative, as multiple reviews of the same problem yield solutions that build on each other. Bills that become laws usually succeed through compromise. The result may be a piecemeal approach, only partially addressing the problem for which a solution was sought. As time goes by, unintended consequences of legislative action may become apparent and necessitate changes to the legislation. Alternatively, the original problem may require stronger or different legislative measures. Because future legislation usually builds on past legislation, legislative activity is history-dependent.

### ***Rational Model of Policy-Making***

One framework for explaining policy outputs is a rational decision-making model in which problems are considered on their own terms and proposals are evaluated according to how well they solve problems within certain constraints (Wildavsky, 2001; Stone, 2002). Decision-makers using this approach might establish common objectives, identify alternative courses of action for achieving objectives, evaluate the possible consequences of each alternative, and select the alternative that maximizes the attainment

of objectives (Stone, 2002). Market economy metaphors are commonly used in this approach (maximize benefits, minimize costs) and cost-benefit analyses support adopting one proposal over another. A rational approach to understand policy involves a systematic and almost scientific approach to solving problems. This approach could be described in the following steps:

1. Something is good, worthwhile, or desirable (goal).
2. We do not have it or enough of it (problem).
3. We can accomplish it or attain more of it in these ways (alternatives).
4. These are the possible consequences of each alternative (evaluation).
5. A particular alternative maximizes the attainment of objectives (decision).

A rational model would show a logical progression from problems to policy proposals to solutions. Policy proposals would be debated and modified through in order to craft the right remedy for a specific problem in a specific community. However, motivations by participants in the policy-making process may not adhere to this rational problem-solving equation. For instance, policy analysts have documented policy proposals that were generated first by an interest group and then matched with a problem in order to move through the political process (Kingdon, 1995). In addition, legislators are motivated to take action in ways that increase their chances of re-election and avoid actions that do not serve this purpose (Feldstein, 1996). Therefore, the rational model has limitations in its applicability to policy-making. Because state variation in tobacco control funding has been difficult to explain, additional explanatory models were explored for the current research.

### ***Political Model of Policy-Making***

To make a causal connection between inputs and outputs in the political process, several theorists have found it useful to conceptualize decision-making with a different

line of reasoning. Stone (2002) views politics as a critical and creative feature of social existence, rather than one to be tamed into a rational and evidence-based process. Her model of society is not a market economy but a political community, where individuals live in a web of dependencies, loyalties, and associations, and where they envision and fight for public interest and for their individual interests. The political arena is one in which decisions are made through words and persuasion, not through force and violence (Arendt, 1958).

Other similar theories include Lindblom's theory of disjointed incrementalism and Diesing's theory of political rationality. They posit that political decisions are not based on the merits of the proposal but on who supports and opposes the proposal (Wildavsky, 2001). Compromise in political decision-making is reasonable even when it is a compromise between a good and bad proposal. According to proponents of the political model of decision-making, action should be designed to avoid complete identification with any one proposal or point of view. The best available proposal should be deferred, objected to, and discussed until major opposition disappears (Wildavsky, 2001). With controversial topics, such as tobacco control, major opposition may not be resolved and may explain state inaction.

Stone (2002) also asserts that paradox is an essential feature of political life, further placing politics beyond the reach of rational analysis. Political deliberations can be understood as strategically crafted arguments, designed to create paradoxes and resolve them in a particular direction (Stone, 2002). Through recognition of recurring arguments and counterarguments in policy rhetoric, these paradoxes can be identified and understood. Conflicts serve to define policy issues and, simultaneously, the way policy

issues are defined helps to structure conflicts among competing interests. Issues are portrayed in terms of who benefits in order to mobilize support for or against proposals. Programs do not themselves have inherent distributions of costs and benefits. Rather, political actors strategically represent programs as contests between different types of costs and benefits (Stone, 2002).

An example of a paradox can be seen in the US strategy for addressing illicit drug use. The “War on Drugs” actually perpetuates problems it was meant to solve and demands further investment in current policies (Bertram et al., 1996). Attacking supply increases drug profits and economic incentives. The high profits ensure that drugs will continue to flow onto US streets and that crime will follow. Incarcerating drug users exerts further pressure on the criminal-justice system while doing little to abate crime. “As the drug supply and crime rates continue to run high, the rationale for the policy remains intact, and it is logical for legislators and administrators to argue for escalation” (Bertram et al., 1996, p. 177).

Defining the values inherent in an issue can influence the outcome of the debate. U.S. drug policy conveys powerful messages that drug use is an individual moral failing and a threat to American values, making it difficult for any policymaker —conservative, moderate, or liberal—to propose a change in direction even when the current policy is widely believed to be ineffective (Bertram et al., 1996). With tobacco control, there are equally powerful messages implicit in support or opposition to government involvement. Paradoxes revolve around personal choice in tobacco use as well as economic support for tobacco farming communities. When an issue is defined from a certain angle early on in deliberations, the conclusion may be pre-determined. Those who disagree are in a

reactive mode and may be seen in a more negative light, even if their position is well-supported.

In the rational framework there is no logical difference between defining the issue as something to be gained or something to be avoided, but politically the choice may matter a great deal. For example, if the problem of illiteracy is defined in terms of how much of the bad we have, what impact that has on individuals and the society, and what we want instead (e.g., more literacy), a political discussion can generate more enthusiasm and momentum than a rational argument to simply increase literacy (Stone, 2002).

In addition, taking away benefits has different political costs compared to providing new benefits, even if the effect on total spending is the same. It is often much easier to mobilize people to resist the loss of something they already have than to work for a gain they have not yet experienced (Stone, 2002). These dynamics were alluded to by Machiavelli in his 16th century advice to Prince Lorenzo Di Medici "... that there is nothing more difficult to carry out, nor more doubtful of success, nor more dangerous to handle, than to initiate a new order of things. For the reformer has enemies in all those who profit by the old order, and only lukewarm defenders in all those who would profit from the new order, this lukewarmness arising partly from fear of their adversaries who have the laws in their favor; and partly from the incredulity of mankind, who do not truly believe in anything new until they have had actual experience of it" (Machiavelli, 1950, p. 21).

The lack of simple, cause-effect relationships in the social world make subtle social phenomena difficult to explain using a rational model. The political approach to understanding policy offers important direction to the current research.

### *Complex Adaptive Systems*

In addition to political policy models, the non-linear dynamics of decision-making are addressed by complexity theory, also known as systems or chaos theory. Complexity theory explains the behavior and order of interacting complex adaptive systems (McDaniel, 1999). Behavior is adaptive with members of a system interacting in ways that improve their function and maintain the system. Small changes can have large effects on the system and follow a geometric progression. Similar to the dynamics of epidemics, organisms or ideas can be characterized by their virulence. Certain individuals can have a profound effect on the system by spreading an organism or idea to many others. Complex adaptive systems display self-organizing and history-dependent behavior, with multiple agents interacting in multiple ways.

Underlying complex adaptive systems is the principle that change is largely shaped by bottom-up instead of top-down forces (Johnson, 2001). When local interactions result in discernible macro-behavior of the complex adaptive system, this movement from lower- to higher-level sophistication is called emergence (Johnson, 2001). It is possible to observe and explain the rules of the system after a change takes place. However, it is difficult to predict how a system will change because of the complexity of interacting systems, the sensitive dependence on initial conditions and the nonlinear, time-dependent relationships among agents (Johnson, 2001).

Baumgartner and Jones (1993) proposed a punctuated equilibrium model to explain policy change in American politics. When issues emerge, new institutional structures are often created that remain in place for decades, structuring participation and creating the illusion of equilibrium (Baumgartner & Jones, 1993). The emergence and

recession of policy issues from the public agenda can be understood by focusing on how issues are portrayed and which institutions have jurisdiction over them. Interaction of these two forces drives their quantitative and empirical approach to the study of policy change.

Various policy areas such as health, the environment, and morality, which have concerned Americans throughout the 20<sup>th</sup> century, show long periods of stability in public policy punctuated by short periods when dramatic change takes place (Baumgartner & Jones, 1993). Gladwell (2000) names this dramatic change the “tipping point” and observes that it follows a geometric instead of linear progression, similar to epidemics. Major change takes place suddenly when a threshold condition is reached, similar to a critical mass or boiling point. Although paradigm shifts do occur in policy areas, they are slow, arduous and difficult to predict (Bertram et al., 1996).

To study complex adaptive systems, systems analysis abstracts the crucial relationships among factors and desired outcomes (Wildavsky, 2001). Systems analysis, derived from operations research during World War II, uses quantitative analysis to identify ways of meeting certain objectives. “The less that is known about objectives, the more they conflict, the larger the number of elements to be considered, the more uncertain the environment, makes it more likely that the work will be called systems analysis” instead of operations research (Wildavsky, 2001, p. 30). According to Wildavsky (2001, p. 50), policy analysis is a form of systems analysis with the following qualities:

1. It involves a broad conception of decision-making and policymaking instead of simply examining resource allocation.
2. It pays close attention to political aspects of public decision-making and policymaking.



3. It emphasizes creativity and search for new policy alternatives, and explicitly encourages innovative thinking.
4. It relies extensively on qualitative methods.
5. It emphasizes futuristic thinking.
6. Its approach is looser and less rigid but nevertheless systematic, recognizing the complexity of means-ends interdependence, the multiplicity of relevant factors, and the partial and tentative nature of every analysis.

These features provided guidance for the current research. The political and systems approaches to understanding policy outcomes served as the theoretical foundation.

### **State Budget Process**

A critical aspect of policy making is the budget process in which legislators and the executive branch allocate financial resources among competing needs (NASBO, 1999). The relative amounts allocated in state budgets reflect the policies established through this deliberative process. Each state government arrives at a decision given its structure, people, history, culture, and public agenda. The diversity of states and state governments make it possible to compare decision-making inputs and outputs among states and ascertain distinguishing characteristics.

There are two steps the legislature must take in order to fund a new priority. Authorizing legislation is necessary to establish the need and goals for the policy. Authorizing bills can be submitted and deliberated at any time of year and are a necessary step in obtaining funding. For any major initiative in a government budget, there was usually an authorizing bill that launched it. Some authorizations expire, while others continue indefinitely. Authorizing bills do not usually stipulate when or if funds will be appropriated for the stated purpose. This is the role of appropriations legislation, which allocates specific

funding for an authorized purpose.

The process of appropriating funds varies by state but generally takes place on an annual or biennial budget cycle. Each state has a review process for the executive and legislative branches to participate in the budget process. The three mechanisms for appropriations are budget bills, supplemental budget bills, and emergency budget bills. Supplemental appropriations are made after the budget has been approved, in order to increase or decrease allocations. Emergency appropriations are usually only made when an unforeseen circumstance arises that impacts the state budget.

Tobacco control is just one of many interests vying for attention in state legislatures during budget deliberations. Federal appropriations are often made to encourage specific state activity. In the case of tobacco control, the federal government provides funding to every state, every year through the National Tobacco Control Program (CDC, 2001). However, this action has not yet spurred every state to prioritize smoking prevention. Though state government officials used the public health burden of disease from tobacco use to justify their lawsuits, post-settlement budgets in most states have not allocated sufficient funding to implement comprehensive tobacco control programs (MSA, 2002; Gross et al., 2002).

### **Comparative State Research and Policy Variation**

Comparing state legislative outcomes allows identification of factors and patterns that explain state policy variation. Comparison often precedes explanation and entails classifying and measuring attributes. Much innovation in the comparative analysis of public policy has taken place in studies of state and local government (Hofferbert, 1974). The research context for this project is the macro-level analysis of state policy variation, specifically looking for state characteristics that explain legislative outcomes.

States differ on a number of dimensions, including political, socioeconomic, geographic, and historical. The people and institutions that constitute government are affected by the resources and constraints of the sociopolitical environment (Hofferbert, 1974). Hofferbert (1974) proposed a model for comparative policy research, known as the “funnel of causality.” This model approximates the design for this research where potential determinants are amassed, studied and narrowed down to specific influences on a particular policy output. Figure 3 displays the model and potential influences that may affect policy output. Whatever the precise interplay of these influences, most states are appropriating less money than expected given the justification for the lawsuits, the harm tobacco use causes, the well-publicized means of reducing this harm, and public support for government intervention (Jacobson et al., 2001).

Previous research on state policy variation suggests numerous potential determinants of state tobacco-control funding. These factors were identified from research on tobacco control legislation, welfare reform, Medicaid coverage, HMO regulations, family medical leave, state lotteries, and school choice (Gross et al., 2002; Chriqui, 2001; Jacobson, Wasserman & Raube, 1992; Kane & Friedman, 1997; Balla, 2002; Meyers, Gornick, & Peck, 2001; Garand & Monroe, 1995; Berry & Berry, 1990). Public policy research can be grouped into studies of: the influence of institutional structures; intergovernmental relations among federal, state, and local governments; the broad characterization of states on dimensions such as political culture and innovation; and the determinants of specific policy outcomes (Meyers, Gornick, & Peck, 2001). Studies of states have used qualitative and quantitative methods to explore policy choices

and legislative outcomes. Studies given the greatest weight in designing the current research centered on determinants of the passage of state tobacco control legislation.

Jacobson, Wasserman, and Raube (1992) conducted case studies in six states and found several important factors that influenced the passage of tobacco control legislation: a legislator championing the cause; a well-organized, cohesive coalition of tobacco control advocates having a clear message; and defining the legislative debate to focus on public health instead of personal freedoms. They also found that the existence and strength of local ordinances created an environment that facilitated the enactment of statewide legislation and affected tobacco industry strategy.

Other factors—supportive public opinion, media attention to the issue, and strong public health infrastructure—contributed to the ability to pass legislation but were not considered sufficient for success. Jacobson et al. (1992) examined state demographic and political factors, such as health rankings and party control of the legislature, but did not find these variables helpful to explain legislative success. This study was carried out before the tobacco settlement occurred and did not focus on tobacco control appropriations. Despite these limitations on the applicability to the current environment, their research demonstrates that qualitative methods can provide greater understanding of the influences on state tobacco control outcomes.

Two studies developed quantitative models to identify determinants of state tobacco control laws. Chriqui (2001) studied determinants of state legislation that restricted youth access to tobacco and found that political conservatism, prior tobacco control policy, and geographic region were significant determinants. The final model explained 42% of the variance in the outcome and included four measures: Republican

control of the state legislature, cigarette excise tax rate, smoker quit rate, and northeastern region of the country (New Jersey north to Maine). Similarly, Watson (1998) studied determinants of state laws on clean indoor air and youth access to tobacco. Significant determinants included socioeconomic status (median household income, state expenditures per capita), public liberalism (proportion of voters supporting the 1988 Democratic presidential candidate), and political party control of the state legislature (Democratic party dominance over a six year period) resulting in a model that explained 40% of the variance in the outcome.

A relevant study of the appropriations process at the state level was carried out by Duncombe and Kinney (1986). They used qualitative methods to examine important influences on the appropriations process by interviewing state officials from different program areas, including human services, education, natural resources, transportation, agriculture, government, and business. Four major factors were named by at least 40% of respondents: revenue availability; legislative influence; the influence of the governor and the executive budget staff; and agency credibility, reputation, and relationships within the legislature. Other factors named by 30% of respondents were public attitudes, public pressures, court orders and mandates. Their results indicate that political and budget factors may be the most important influences on the appropriations process.

From diffusion of innovation to public finance policy analysis, studies have identified influences on state policy decisions and ways of measuring those influences (Rogers, 1995; Brace & Jewitt, 1995; Mintrom, 2000; Stillman et al., 1999; Chriqui, 2001; Glantz & Begay, 1994; Jacobson & Wasserman, 1999; Watson, 1998; Berry & Berry, 1990; Balla, 2002; Orlandi et al., 1990; Gray, 1973; Walker, 1969). Determinants

from these studies and others informed the current research on state tobacco control appropriations and are listed in Table 3. Potential determinants are state-level characteristics previously found to differentiate state health or social policies. Many of the factors are supported by several studies published in peer-reviewed journals. Factors and the ways they have been operationally defined are organized as socioeconomic, political, budget, and health factors.

Factors were not included in the table if they had no meaningful connection to tobacco control funding. For example, one study found that the number of nursing home beds available was predictive of state spending for long-term care (Kane et al., 1998). Number of nursing home beds was not included as a potential factor for the current research because it was not plausibly connected to state tobacco control policy. However, existing public health infrastructure was included as a potential predictor because of its relevance to the ability to utilize funding for tobacco control.

### **Significance of the Current Research**

The state settlements with the tobacco industry provide a unique opportunity to study state policy choices under uniform conditions, with states receiving roughly proportional payments at the same time. The tobacco settlements with states are historically significant because of the amount of revenue they bring to states, the long-term nature of the revenue stream, and the flexibility of the funds (HPTS, 2001). Other studies have analyzed state policy choices following large-scale changes across states such as welfare reform in the mid 1990s (Soss et al., 2001). Studying resource allocation for tobacco control is important because of the impact funding can have on health outcomes. As discussed previously, increased state funding for tobacco control has been

linked with decreased tobacco consumption and decreased tobacco-related morbidity and mortality (NCPB, 2000; Farrelly, Pechacek, & Chaloupka, 2003; Fichtenburg & Glantz, 2000).

An important question that is beyond the scope of this study is whether state tobacco control appropriations result in funding for evidence-based and effective tobacco control programs. If tobacco control programs cannot be implemented with integrity due to lack of funding, then they may fail no matter how effective they were previously demonstrated to be (Nutbeam, 1996; Capper et al., 1996). Therefore, adequate funding is a critical step towards evidence-based and effective programs.

Increasing the public health community's understanding of the determinants of tobacco control funding may increase the ability to influence future allocations. Studying this topic early in the settlement payment process is also important because initial allocations of a new revenue source set a precedent for the way revenues are appropriated in future years (Ritch & Begay, 2001a). In Massachusetts in 1994, the first budget year after the state tobacco control ballot initiative passed, only 23% of funds from dedicated excise tax revenue was appropriated for tobacco prevention and cessation programs exclusively. The diversion of money away from tobacco control soon after the new revenue source was established set a pattern for the way funds have been allocated since 1994 (Ritch & Begay, 2001a). In addition, settlement payment amounts have been decreasing compared to the payments that were originally projected (HPTS, 2000). Therefore, this opportunity for funding state tobacco control programs may be limited.

Policy research in tobacco control has only recently become a priority. Without assessing policies and their impact, it has been difficult to assert the effectiveness of

changing the environment to prevent tobacco use (Davis, 1995). Now public health researchers are encouraged to study policy-making and apply their findings through action in the policy arena (Davis, 1995; Thompson, 1994). The two studies described below address the need to understand state policy choices for tobacco control, especially after the infusion of settlement money to the states. This research identifies factors that explain state levels of funding for tobacco control.

## **OVERVIEW AND HYPOTHESES**

The outcome of interest for this study was the amount appropriated by state legislatures for tobacco control and prevention activities. The CDC defines tobacco control appropriations as funding specifically appropriated to any governmental agency, foundation, trust fund, board, or university for tobacco control programs, including educational, clinical, regulatory, economic, and comprehensive techniques used to prevent or limit exposure to tobacco (CDC, 2001; US Surgeon General, 2000). Tobacco control appropriations are a crude measure of how much state governments will spend on tobacco control and prevention activities in the following fiscal year (Rubin, 1997; Gross et al., 2002).

The definition of state tobacco control appropriations includes funding allocated by the state government for both primary and secondary prevention of tobacco use. It does not include research activities, medical treatment of tobacco-related illnesses, or economic assistance for tobacco farming communities. Preventing tobacco use decreases demand for tobacco products and impacts farming communities. This anticipated consequence of states using settlement income to fund prevention programs was



addressed through a separate settlement between the tobacco industry and tobacco producing states, called the Phase II Settlement (Redhead, 1999).

After reviewing the literature, the investigator identified the following gaps in knowledge:

- Given that measures of tobacco burden of disease do not explain state tobacco control funding, what are potential explanatory factors of this outcome?
- What conceptual framework could be used to explain state tobacco control funding?
- What quantitative associations exist to explain tobacco control funding variation across states?

The goal of this study was to increase understanding of what factors influenced state funding decisions for tobacco control following the state settlements with the tobacco industry. This study sought to explain variation across states, why some states are funding tobacco control activities more generously than other states, by identifying determinants of state tobacco control appropriation amounts. The study utilized a combination of qualitative and quantitative research methods to identify potential factors, develop a conceptual framework to relate them, and test the associations among factors for which existing data were available.

Using several methods to address the same research question is known as triangulation. Interviews and review of the literature were used to identify relevant factors, operational definitions, and potential data sources. The modified Delphi method, a form of group process that enables expert consensus without face-to-face meetings, allowed further examination of the importance of factors and their inter-relationships. Development of conceptual frameworks based on this qualitative information enabled more systematic and informed quantitative analysis. Regression techniques were used to

test measures of factors perceived to be important and identify areas for further quantitative exploration.

Qualitative methods were an appropriate tool to focus the direction of the quantitative analyses for at least two reasons: 1) the influences on state appropriations for tobacco control are not well understood and 2) many possible factors are suggested in the scientific literature. Combining methods can help achieve different goals at different stages in a project, compensate for the shortcomings of individual methods, and achieve a deeper understanding of the area under investigation (Barbour, 1999; Pope & Mays, 1995; Baum, 1995). Both quantitative and qualitative approaches make important contributions and can be carried out in scientifically sound ways (Baum, 1995).

The benefits of using qualitative methods include gaining insight into the process of data construction, identifying relevant variables, explaining unexpected or anomalous findings, and generating hypotheses (Barbour, 1999). Often qualitative methods are used to improve quantitative methods such as in questionnaire design (Giovino, 1999; Bernard, 1995; Cassady et al., 1997). A combination of qualitative and quantitative methods has been recommended by researchers in health services management, nursing research, policy analysis, political science, and epidemiology to study topics as diverse as climate change, animal health management, family therapy, and smoking prevalence (Pope & Mays, 1995; Balla, 2002; Giovino, 1999; Baum, 1995; Barbour, 1999; Corner, 1991; Keeney & McDaniels, 2001). They were used in combination in this research to increase the validity of the findings.

### **Specific Aims and Hypotheses**

This research had two specific aims:

Specific Aim 1 -- To identify potential explanatory factors of per capita state appropriations for tobacco control (Study 1).

It was expected that political and budget factors would be recommended by key informants through interviews and modified Delphi ratings as the most important influences on state tobacco control funding decisions. Specific factor names, definitions, measures and data sources would also be recommended by key informants. Ratings would provide a systematic way to identify the most important factors to pursue in the quantitative analysis.

Specific Aim 2 – To quantify the associations among factors and per capita state appropriations for tobacco control (Study 2).

Hypotheses:

1. Tobacco industry political activity is negatively associated with state tobacco control funding.
2. The dependence of the state economy on tobacco is negatively associated with state tobacco control funding.
3. State budget deficits are negatively associated with state tobacco control funding.
4. Liberal government priorities are positively associated with state tobacco control funding.
5. Liberal governors with power are positively associated with state tobacco control funding.
6. Strong tobacco control advocacy is positively associated with state tobacco control funding.
7. Supportive public opinion is positively associated with state tobacco control funding.

## **STUDY 1**

### **Methods**

#### ***Literature review***

The literature review included articles, reports, and books cited in recently published reviews, reference lists of other studies, and database searches of MEDLINE, PsychINFO, ABI/Inform, and JSTOR. MEDLINE contains references from biomedical journals; PsychINFO from journals in behavioral and social sciences; ABI/Inform from journals in business, management, finance, and economics; and JSTOR from political science and public policy. The database search was conducted with the following parameters: articles published in English in peer-reviewed journals between 1990 and 2003 that included the following words in the title, abstract, or key words: “smoking,” “tobacco control,” “prevention,” “appropriations,” “budget,” “funding,” “state policy,” “state variation,” “state comparison,” “Delphi,” “qualitative.” Based on the literature review, the investigator produced a proposal for this research as well as a table of potential determinants (Table 3).

#### ***Human Subjects Protocol Review***

Study 1. In preparation for this research, the principal investigator submitted a research protocol to the USUHS Institutional Review Board. On September 30, 2002, approval was granted to carry out the human subjects portion of this research, which involved collecting and analyzing qualitative data through key informant interviews and Delphi ratings. The Informed Consent Form appears in Appendix B. Because interviews with key informants were tape-recorded, the investigator discussed special considerations for tape recording by phone with staff in the Office of Legal Counsel on October 14,

2002. Staff advised that procedures were adequate to ensure informed consent (participant's initial verbal approval, signed consent form, and agreement again before the investigator turned on the tape recorder).

Study 2. Approval for the quantitative portion of this study was requested on October 20, 2002, through an amendment specifying analysis of secondary state-level data. Final approval for this protocol was received on December 2, 2002. The protocol identifier for this research is T087RA.

Additional protocol review activity:

In January 2003, the investigator consulted with the IRB Coordinator regarding whether the identities of key informants could be shared with dissertation committee members. It was determined that the approved protocol enabled this information to be shared with committee members on a confidential basis. A copy of the confidential memorandum that was shared with committee members was provided to the IRB Coordinator on February 12, 2003.

In June 2003, a modification was submitted requesting permission to make one additional email contact with two informants who had not returned ratings information. This email served to notify them that their response was needed by July 10. On June 30, 2003, permission was granted to make one additional contact with these informants.

On August 15, 2003, an annual renewal for project continuation was submitted. Renewal was received, which allows data collection and analysis to continue until September 14, 2004.

### ***Key Informants***

Because limited research exists to explain state appropriations for tobacco control after the tobacco industry settlements, interviews were conducted to gain a deeper understanding of the area under investigation, to generate hypotheses, and to identify variables and potential data sources. Professionals with detailed knowledge of state tobacco policy or appropriations in two or more states were sought to participate in interviews. Interviews are a common method of studying policy formation and identifying factors important in the political process (Kingdon, 1995; Mintrom, 2000). Other studies have examined individual states in depth to identify important factors in the decision-making process (Jacobson, Wasserman & Raube, 1992; Monardi & Glantz, 1998). Given the goal of developing a model to explain the outcome in all 50 states, individuals with knowledge of more than one state were utilized to identify common influences on state governments instead of what was important in only one state.

The first participants were from organizations tracking state appropriations after the tobacco settlements (e.g. ALA, CDC, CTFK, GAO, NCSL, NGA). This purposive sample was combined with snowball sampling to identify additional key informants. Snowball sampling involves choosing initial contacts and asking a question that elicits appropriate recommendations for additional contacts. It is a useful method of non-probability sampling and an effective way to build an exhaustive sampling frame, especially for a relatively small population of people who are likely to be in contact with one another (Bernard, 1995).

Of fifteen people contacted to participate in this study, all fifteen agreed to be interviewed with one person serving as a pilot participant and the other fourteen

completing formal interviews. After an initial telephone contact, key informants were sent an introductory letter confirming their participation and the logistics of the interview, as well as a copy of the consent form. The introductory letter elaborated on the study methods, the definition of the outcome of interest, and the purpose of conducting interviews to identify determinants of this outcome (see Appendix C).

### ***Interviews***

The procedures were piloted and refined by contact with the first key informant. This contact resulted in changes to both the interview and modified Delphi technique. In addition to sample data, this individual provided feedback on the procedures and written materials. The feedback resulted in changes to the order of interview questions and the words used to ask the questions as well as revisions to the language used in Table 3.

Fourteen interviews were conducted and audio-taped. Thirteen interviews took place by phone and one took place in person. Interviews lasted roughly 50 minutes. Key informants were reminded of the purpose of the study and the definitions being used. Key informants were then asked about their knowledge and experience, using the following categories: 1) state health, 2) state policy, 3) state budget, and 4) state politics. They were also asked the number of years they had worked in their area. To assess the geographic coverage of the 50 states, participants were asked how many states they were familiar with and were asked to name the 10 states with which they were most familiar.

The main body of the interview followed a semi-structured format with mostly open-ended questions intended to stimulate discussion about influences on state appropriations for tobacco control (Bernard, 1995). In projects involving elite members of a community who are accustomed to efficient use of their time, semi-structured

interviewing works well because it demonstrates that the interviewer is prepared, but not trying to exercise excessive control over the informant (Bernard, 1995). A few key informants are capable of providing adequate information about a culture or topic when they are chosen for their competence rather than just for their representativeness (Bernard, 1995). Semi-structured interviews are recommended over unstructured interviews when there will be only one chance to interview someone (Bernard, 1995).

The interview guide for this study was developed from other studies of state policy determinants and appropriations (Glantz & Begay, 1994; Goldstein & Bearman, 1996; Jacobson, Wasserman & Raube, 1992; Balla, 2002; Duncombe & Kinney, 1986; Chriqui, 2001; Watson, 1998). In addition to the questions detailed above, the interview guide included the following questions:

1. What factors influence state tobacco control funding? Based on what you know about state activity over the last 3 years, what factors would you recommend I focus on to explain state tobacco control appropriations? What factors might be important in explaining different levels of tobacco control funding in the 50 states? (Follow-up questions probed for additional ideas, such as: “Are there other factors that come to mind?” “Can you say more about \_\_\_\_?” “Was \_\_\_\_ something you saw in several states?”)
2. If limited discussion was generated by these questions, more specific questions were asked about the influence of key individuals, key groups, effective strategies, and the role of public opinion, the media, other states or the federal government.
3. How would you recommend I measure the factors you have suggested?
4. Do you know of existing data sources for these factors?
5. Are there other people you would recommend I contact who are knowledgeable about this topic?
6. Do you have any other observations about this topic or this study you would like to share with me?



The interview concluded with a reminder to informants that they would be contacted for their final assessment of the importance of factors identified during interviews (i.e., modified Delphi process).

Prior to the interview, the first eight participants received the table of potential determinants derived from previous literature (see Table 3). They were asked for their comments on the factors during the interviews. The last six participants did not receive the list but were asked to comment on the same topics through specific questioning. This change allowed for more open-ended discussion and seemed to yield richer responses. The iterative nature of interviewing is one of the benefits of this method. Successive interviews allow for minor adjustments and improvements, a standard feature of this technique (Rubin & Rubin, 1995).

### ***Interview Coding***

Twelve interviews were transcribed from 14 recordings and were subjected to narrative analysis. Two of the recordings had poor audio quality and were not transcribed. Notes taken by the investigator during the two interviews that were not transcribed indicated that the factors these key informants named were represented in the coding scheme. In addition, the number of factors generated by these key informants was similar to the number generated by other key informants during interviews.

In keeping with standard qualitative data analysis, a coding scheme was derived inductively from reviewing the transcripts as interviews were completed (see Table 4; Rubin & Rubin, 1995; Miles & Huberman, 1994). Coding is the process by which oral communication is broken down into categories for analysis and involves iterative cycles of induction and deduction (Crano & Brewer, 2002; Rubin & Rubin, 1995; Miles &

Huberman, 1994). The formal analysis of interviews allows the discovery of concepts that build towards an overall explanation of the research question (Rubin & Rubin, 1995).

Instead of defining the coding scheme by frequency of word use, themes representing distinct influences were chosen as the unit of coding. The goal of the coding scheme was to develop a comprehensive list of factors and allow a systematic review of the ideas contained in the interviews. Factors were included on this list if informants volunteered them as important influences on tobacco control funding or if informants affirmed their importance in response to specific questions from the investigator. The coding scheme accommodated general as well as specific statements about important influences on tobacco control funding. Unless factors could clearly be combined, they were kept separate, especially when distinctions were perceived to be meaningful to the study (Miles & Huberman, 1994). The investigator decided to allow a large number of codes since the modified Delphi process provided a systematic method of identifying and eliminating less important factors.

When the 12 transcripts were reviewed, a total of 26 codes or factors were identified. These 26 items were clustered into six meaningful categories that described contexts relevant to tobacco control funding, including Budget Context, Political Context, Tobacco Control Context, Tobacco Industry Context, Prior Policy Context, and Larger Social Context. Table 4 presents the coding scheme with the 26 factors clustered by category and definitions for each factor. The coding scheme was designed to be extensive instead of intensive, with judgments requiring little or no inference (Crano & Brewer, 2002). These qualities were incorporated into the coding scheme to enhance reliability.

In order to determine the reliability of the coding scheme, the principal investigator trained three independent coders to apply the coding scheme. Training took place during two 30-minute sessions. The coders scored the transcripts independently of each other. Each transcript was scored by two of the three coders. Percent agreement was calculated (Kelsey, Thompson & Evans, 1986). To derive the final codes for interviews, each discrepancy between coders was resolved through a forced-choice selection by a third coder. Coders also contributed to improvements in the coding scheme before it was finally applied, through their feedback on the way factors were described and ordered.

### ***Modified Delphi Process***

To prioritize the list of factors obtained from the interviews, a modified Delphi technique was used (McBride et al., 2003; Hasson, Keeney & McKenna, 2000). The Delphi technique is a form of group process that generates consensus from a panel of experts without bringing them together in a meeting (Gilmore, Campbell & Becker, 1989). The Delphi method is useful to examine past events and yield a historical action picture of the time it was undertaken (Everett, 1993). An advantage of the Delphi technique is that it avoids some of the pitfalls of nominal group process where conformity, domination, and conflict can affect responses (McBride et al, 2003). A disadvantage is that group members cannot easily clarify the material that is circulated or discuss areas of disagreement.

The goal of using this technique was to assess the state of informed opinion at the time of the research. Typically, the first step of the Delphi technique involves participants generating a list of factors on their own in response to written questions and

then a group of investigators consolidating the output (Warner, Holloway & Grazier, 1994; Gilmore, Campbell & Becker, 1989). Through multiple surveys, respondents generate as many factors as they can and then winnow down the list by making judgments about which factors are most important. The iterative process usually involves three to four contacts. This study involved two contacts for data collection procedures. The modification of the Delphi technique was designed to utilize respondents' time efficiently, maximize the information obtained with each contact and minimize the number of contacts, so as to retain as many respondents as possible.

To obtain ratings of importance on the 26 factors identified in the interviews, each participant received an emailed form, which differed only in terms of the random order in which the factors were listed. Appendix D contains a sample form that lists the 26 factors and their definitions, along with instructions and spaces for responding. The random ordering was carried out to minimize the formation of response sets (Crano & Brewer, 2002).

Participants were asked to complete three tasks before returning the form. The first task was to rate the importance of each factor using an eight-point scale (i.e., 1=not at all important to 8=extremely important). To allow variability in responses, the Likert scale extended to the upper end of the cognitively meaningful range of  $7 \pm 2$  points (Miller, 1956; Anastasi, 1979). An even number of points was chosen to avoid the tendency to gravitate towards the center or midpoint of the scale (Crano & Brewer, 2002). The second task was to select the 10 most important factors from the list of 26, and the third task was to rank order those 10 factors (with 1=most important). At the end

of the form, participants were asked to write in any important factors that did not appear on the list and to provide comments on any aspect of the study.

## **Results**

### ***Key Informants***

Table 5 summarizes the descriptive characteristics of the fourteen experts interviewed. Three individuals were affiliated with health advocacy organizations, two were from government agencies, two were from state associations and seven were from research institutions. When asked about expertise, three participants identified their professional knowledge as pertaining to state health matters, four reported familiarity with state policy, one said state budget, three said state politics, and four indicated expertise in all four areas. Participants reported being in their field from 1 to 25 years, averaging 12 years (standard deviation=7.3). Participants reported familiarity with a range of 2 to 50 states (mean=16, s.d.=19.4). Twenty-five different states were included in participants' listing of most familiar states with good geographic coverage of the regions of the United States.

Interviews were conducted until there was sufficient evidence that saturation had been reached (Malterud, 2001). Saturation was judged by examining the number of new factors identified with each interview: 25 of the 26 factors were obtained in the first 3 interviews; the seventh interview resulted in one additional factor; then eight more interviews took place without adding any new factors to the coding scheme. Figure 4 displays the accumulation of new factors as interviews were conducted.

### ***Interviews***

The fourteen key informants initially presented three to six factors as important to explain state tobacco control funding. However, as discussion continued, these broad factors became more separate and nuanced. For example, one participant said three factors were important: “the budget situation in states,” whether or not it was “a tobacco growing state,” and “the political culture of the state.” These were coded as BUDGET SITUATION, TOBACCO ECONOMY, and POLITICAL CULTURE. Then when asked for more information about each of these factors, the participant said that it was not just important whether the state had projections of deficits or surpluses, but “how forward-looking they were in setting up endowments for tobacco control.” This new category was coded as DEDICATED FUNDS. When the participant was asked to elaborate on the POLITICAL CULTURE factor mentioned earlier, the person said that if the state has “strong advocacy for tobacco control, that can be very influential” which was coded as TOBACCO CONTROL ADVOCACY. The participant presented three factors with two additional factors being identified through probing, for a total of five different codes.

### ***Interview Coding***

The investigator placed brackets delineating text to be coded on all 12 transcripts. The independent coders read the entire manuscript and then selected one code from the coding scheme that best described the main idea expressed in each bracketed passage of text. The final codes for the 12 transcripts were agreed on by two of the three independent coders and ranged from 5 to 18 unique codes per interview (average 11 codes).

Reliability of the coding scheme was assessed by having two independent coders review each transcript and then computing inter-rater reliability using percent agreement. Percent agreement of the paired answers was calculated by dividing the number of pair agreements by the total number of pairs and multiplying by 100 for each interview (Kelsey, Thompson, & Evans, 1986). Reliability scores across all twelve transcripts were averaged for an overall reliability of 82% (range 61-100%).

Reliability of bracketed text passages was determined by comparing the brackets placed by the investigator with those placed independently by one coder. After gaining experience coding several transcripts, a coder was asked to draw brackets on a new transcript to validate the selection of text passages for coding. The bracket pairs placed on the transcript by the investigator and the coder corresponded on 8 of 10 pairs. In sum, the coding scheme was used consistently across coders and brackets were reliably placed.

Appendix E allows further examination of the types of ideas captured in the coding scheme. Quotes from transcripts are categorized by factor. The richness of the data is clearly seen in the descriptions, examples, and caveats provided by key informants.

### ***Modified Delphi Process***

Twelve of 14 key informants returned their rating forms. The 86% response rate on the Delphi step is at the high end of the range needed to represent consensus of the group, with 50% being the minimum response rate necessary (Hasson, Keeney, & McKenna, 2000). All twelve forms were completed in full. No additional factors were mentioned in the comment section provided at the end of the forms, though two respondents did use this space to provide clarification of their answers.

Table 6 presents the average ratings participants gave each factor on an 8-point scale, the frequency of times each factor was placed in the top 10 expressed as a percentage, and a summary value of rankings in the top 10. The ratings were completed for each factor and reflect importance on an 8-point scale, whereas the frequency values indicate the factors people believed most strongly should be included in the top 10. The summary ranking was computed by inverting the values of the top 10 (from 1 being the highest to 10 being the highest) and then summing across respondents. The summary ranking expressed how highly a factor was ranked and the frequency with which it was chosen.

Cutoff values were determined for each of these measures based on a rough midpoint and where a natural break occurred on the graphical display, indicating diminished importance of factors. Figure 5 displays the average ratings in descending order with a natural break evident at 5, which was chosen as the cutoff. Figure 6 shows the plot of the summary ranking with a natural break at 30, which was chosen as the cutoff and is also the rough midpoint. Figure 7 plots the frequency percentage values for each factor; a natural break at 50% also coincides with the midpoint. The final column in Table 6 indicates the number of Delphi measures that were above the cutoff value for each factor. In general, these measures showed that the same factors were consistently judged to be most important by the group of respondents.

Figure 8 provides a comprehensive framework of factors obtained in the current research. Factors from the coding scheme were clustered into three general categories, Inside State Government Influences, Outside Influences and State Tobacco Control Policy, shown as an overlapping area that is influenced by both of the other categories.



Figure 9 presents a conceptual diagram of how the top factors may be related and the specific influences they may have on state tobacco control funding. Eleven factors were above the cutoff value for all three measures in Table 6 and were included in Figure 9, namely: BUDGET SITUATION, DEDICATED TOBACCO CONTROL AND PREVENTION (TCP) FUNDS, TOBACCO INDUSTRY, TOBACCO ECONOMY, PUBLIC OPINION, STATE PRIORITIES, GOVERNOR, TCP LEGISLATOR, TOBACCO CONTROL LEADERSHIP, ADVOCACY, and COALITION. These factors are represented by different shapes to differentiate people/groups (ovals) from abstract ideas/things (rectangles) in Figure 9. Factors outside and inside the State Government Box appear in order of importance according to the percentage of respondents who placed the factor in the top-ten (in parentheses beside each factor). The definitions of these factors appear in the coding scheme in Table 4.

Factors outside State Government in descending order of importance include TOBACCO INDUSTRY, TOBACCO CONTROL ADVOCACY, AND PUBLIC OPINION. TOBACCO INDUSTRY and TOBACCO ECONOMY were combined into one oval for display simplicity and were hypothesized to have negative effects on funding for tobacco control (as indicated by the minus sign). TOBACCO CONTROL LEADERSHIP, ADVOCACY, and COALITION were combined into one oval representing tobacco control advocacy external to the state government and were hypothesized to have positive effects on tobacco control funding (as indicated by the plus sign). PUBLIC OPINION was hypothesized to have some effect on funding but without certainty about direction (plus/minus sign).

Factors inside State Government in descending order of importance included BUDGET SITUATION, STATE PRIORITIES, GOVERNOR, LEGISLATOR, AND DEDICATED FUNDS. GOVERNOR AND PRIORITIES, if liberal, were hypothesized to have positive effects

on tobacco control funding. A LEGISLATOR taking a stand for tobacco control was hypothesized to have positive effects on funding. THE BUDGET SITUATION, if in deficit, was expected to have a negative association with funding. DEDICATED FUNDS earmarked for tobacco control were expected to have a positive association with funding.

## **Discussion**

The goal of Study 1 was to systematically identify important influences on state tobacco control funding using experts as key informants. Because prior research had not yielded a clear understanding of the method and processes by which tobacco control appropriations were determined, this study identified factors, conceptualized their interrelationships and ranked their importance. The experts who were highly familiar with state tobacco control policy and legislation were instrumental in generating the list of factors and in winnowing it down to the most important subjective factors. Interviews provided rich, in-depth information about state tobacco control decision-making. The list of factors, their perceived importance, and a conceptual framework are the contributions made by Study 1.

Of the 11 factors considered most important, BUDGET SITUATION, TOBACCO INDUSTRY, TOBACCO ECONOMY, PRIORITIES, and GOVERNOR were deemed to be most influential with the top five rankings. These five factors are decidedly political in nature. Tobacco Control Advocacy, leadership and coalition were deemed to be influential, but were ranked below the other factors. This finding suggests that tobacco control advocacy is important but secondary to other political factors in the appropriations process. The political nature of the important factors is a key determination of Study 1 and should draw the greatest attention from public health practitioners. This finding has implications

for those who attempt to influence various state legislatures to secure tobacco control funding – and likely any other form of public health funding.

The diversity of factors in the coding scheme conveys the complexity of political decision-making. As much as possible these codes represented the words and concepts used by expert participants. To name and define factors, the investigator employed terminology and definitions used by key informants and found in previous policy research. Because key informants were asked to identify factors that would explain state tobacco control funding, all 26 factors named in interviews were important to some extent. These factors are arrayed in Figure 8 as a comprehensive framework for understanding state tobacco control funding. While the coding scheme may not represent a concise expression of factors, it appears to be an accurate way of summarizing the interviews and was reliably applied by independent coders. Because of the systematic process for identifying factors, this comprehensive framework provides a solid basis for further research in this area.

Factors in the coding scheme have several different types of characteristics. Some factors are general and abstract, whereas others are very specific. The 26 factors were kept separate because experts presented them as distinct ideas or actions. Information from the interviews would have been lost had there not been both general and specific factors in the coding scheme. Because both types of factors were included, there were areas of overlap among factors.

An example of overlap is evident with the codes DEDICATED FUNDS, POLICY HISTORY, PUBLIC OPINION, and BALLOT INITIATIVE. POLICY HISTORY was the most general of the three categories, encompassing any prior tobacco control activity at the state

government level. DEDICATED FUNDS were related to money being earmarked for tobacco control, which could be accomplished by the state legislature or by the public through ballot initiatives. BALLOT INITIATIVE was mentioned during several interviews as a way that the public expressed their opinion about what the legislature should do with increased state revenue from tobacco excise taxes. While BALLOT INITIATIVE was a specific category invoked during some interviews, other key informants used more general terms to express the earmarking of state funds for tobacco control and did not specify how this process occurred. These alternate meanings made it difficult to combine these codes.

Informants sometimes used the same words to express different ideas or different words to express the same ideas (Rubin & Rubin, 1995). For example, one participant said “political culture” was influential “where some states historically had a strong tobacco prevention program in place.” This response was coded as POLICY HISTORY. Another participant said that “the political dimension [wa]s huge,” that “political culture” was important, and that states had “a political personality.” This response was coded as POLITICAL CULTURE.

Given the goals of this research, it was not possible to assess the perceived associations among factors, though this could have been carried out if data had been collected differently. Similarity judgments of all possible pairs of factors and multidimensional scaling analysis could determine the spatial proximity of factors when mapped. Cluster analysis or factor analysis could determine whether multiple factors loaded on the same dimension. However, multiple contacts or extended data collection

sessions would have reduced participation and this cost outweighed the benefits of further refining the coding scheme.

The findings of this study emphasized political variables and the roles played by state officials and interest groups in appropriations decisions. These findings are consistent with other research on policy outcomes (Martin, Whittle & Levit, 2001; Fleming, Ma & McGuire, 2000; Gamkhar & Sim, 2001; Givel & Glantz, 2000; Givel & Glantz, 2001; Ritch & Begay, 2001a; Pierce-Lavin & Geller, 1998; Duncombe & Kinney, 1986; Glantz & Begay, 1994).

BUDGET SITUATION was considered the most important determinant of tobacco control funding by experts in Study 1. Budgetary constraints are a logical influence on state appropriations. Since the tobacco settlements were reached, state fiscal situations have taken a turn for the worse. States are experiencing dwindling tax collections and have curtailed spending significantly in Fiscal Years 2002 and 2003. Before the economic downturn, state government spending increased by 8.3% in 2000 but is now increasing at only 1.3% per year. Additionally, in Fiscal Year 2002 and 2003, forty states made cuts to their enacted budgets midway through the year (NASBO, 2002).

The budget situation varies widely but has affected all states to some extent by the sharp swing from large surpluses to deficits. Elected officials are attempting to maintain services while balancing budgets with less revenue. Tobacco control funding is likely to suffer in this environment. In addition, because the stability of the state economy is a major concern for elected officials, it follows that tobacco control funding would be negatively impacted by a state's economic reliance on tobacco.

Another constraint on appropriations is mandatory budget items, which include salaries, benefits, debt financing, and health and pension entitlement programs. An Urban Institute treatise on government reform states that "real progress will come from understanding how needs and demands are changing in the economy and in family life, how prior commitments tie up most new government resources, and how the political process can be manipulated to deter us from making realistic trade-offs among competing needs" (Steuerle et al., 1998, p. 5). As interest groups influence the appropriations process, discretionary funds further decrease as they are earmarked to benefit certain groups. This decrease in discretionary funds results in a loss of flexibility for legislators to respond to constantly changing situations. Government officials become less responsive to the general population as the discretionary budget decreases (Rauch, 1994).

The importance of the executive branch was emphasized by participants in Study 1, who named the governor as an important influence and then ranked the governor as one of the top five influential factors. Both legislative and executive branches of state government are involved in budget decisions. The executive branch commonly formulates a plan that is then deliberated by the legislature. During the budget process, it is discretionary spending that is the primary focus of deliberations. Once the legislature approves a budget, the governor then signs it into law or vetoes it, sending it back to the legislature for further deliberation. At times of fiscal crisis, governors may also have authority to make unilateral budget decisions to balance the budget or reallocate funds for an emergency.

Leadership in policy-making can be exerted inside or outside of the legislature. In the literature, individuals who take the lead on policy change are called legislative

champions or policy entrepreneurs. Through creativity, strategy, networking, and persuasive argumentation, leaders bring ideas for policy innovation into common currency to promote policy change (Mintrom, 2000).

The results of Study 1 support the importance of interest groups in tobacco control funding decisions. Advocates for tobacco control and the tobacco industry, though on different sides of tobacco control issues, are key influences on policy making. The importance of advocacy is also supported by research on tobacco control policy and public policy in general (Hero, 1998; Wilson, 1980; Rauch, 1994; Kollman, 1998; Givel & Glantz, 2001; Stone, 2002). Interest groups can be seen as a mechanism for organizing diffuse public sentiment into a focused effort to bring about change. Public opinion can be amplified through advocacy.

Research emphasizes interest group influence on the appropriations process. Tobacco control advocates in Massachusetts, California, Arizona, and Oregon highlight the importance of a well-organized antitobacco coalition on how dedicated excise taxes were appropriated (Ritch & Begay, 2001a; Pierce-Lavin & Geller, 1998). When tobacco control advocates have used insider approaches, counting on behind-the-scenes access, their efforts have not produced the desired result (Balbach, Traynor & Glantz, 2000; Givel & Glantz, 2000). Studies have depicted effective antitobacco advocacy, including outsider strategies that keep pressure on elected officials (Givel & Glantz, 2000; Givel & Glantz, 2001; Glantz & Begay, 1994; Ritch & Begay, 2001a; Pierce-Lavin & Geller, 1998). However, the outsider strategy requires time and resources and the outcome can be unpredictable.

Tobacco industry political activity was identified as an important factor in the current research and in previous research. One study found that tobacco companies gain allies through business organizations and these allies advocate for the tobacco interests without seeming to have a conflict of interest (Ritch & Begay, 2001). Researchers conclude that collaboration among these groups in Massachusetts helped forestall local clean indoor air ordinances and worked to put preemptive state legislation in place (Ritch and Begay, 2001).

Public opinion was also judged to be one of the most important influences on tobacco control funding decisions in Study 1. Decades of research have been devoted to assessing the importance of public opinion and many researchers believe it is an important determinant of policy outcomes (Erikson, Wright & McIver, 1993). However, some researchers believe it plays only a modest role in the formulation and implementation of governmental policy (Sabatier, 1999). Further exploration of the connection between public opinion and policy is needed to determine its role in state tobacco control funding.

The association between state population and policy outcomes is supported by the scientific literature. Gross et al. (2002) found that states where tobacco is grown were less likely to fund tobacco control programs. Their finding is consistent with other studies that indicate that larger, more industrialized states tend to pioneer tobacco control programs, whereas small, rural states are less likely to pass tobacco control legislation or fund prevention programs (Gray, 1973; Walker, 1969; Garand & Monroe, 1995; Watson, 1998; Chriqui, 2001). This effect may stem from smaller states having fewer economic resources for government to tap. It may also reflect an association between rural states



and conservative government policies compared with more urban states that tend to have more liberal governments and policies.

Experts in Study 1 suggested several factors that may exert influence on decision-making externally or from outside the state, namely tobacco control in another state, federal action and national association activity (which was included in tobacco control advocacy). Regionalism, the influence of nearby states on a state adopting a new policy, has been found to be predictive of other legislative outcomes (Berry & Berry, 1990; Balla, 2002; Mintrom, 2000). Walker, an early theorist and researcher in state policy adoption, believed that policy-making was done by analogy, where legislators compared their situation with other similar states (Walker, 1969). The experience of neighboring or similar states may serve as a resource or impetus to action since positive outcomes are likely to garner legislators' interest and support in other states. Berry and Berry (1990) in their study of state lottery adoption, assessed regionalism by summing up the number of neighboring states that had passed lotteries as a measure of the regional influence on each state.

Factors that hampered funding received higher ratings by key informants than factors that augmented funding. For example, tobacco economy and industry were rated more highly than any of the tobacco control advocacy factors. This may indicate that the interests with more resources and lobbying experience have more influence. In addition, the special interests that benefit from the current situation are not willing to give up that advantage without a fight, while the benefactors of the new policy do not appreciate what they have yet to experience. This fits with the political theory set forth by Stone (2002) and discussed in the first chapter.

The current research was subject to a number of limitations. The sample size of key informants was small and not randomly drawn. Such characteristics are standard for qualitative studies (Bernard, 1995), but they make it difficult to determine the generalizability of the results. Still, the high degree of consensus among opinions was encouraging, particularly because the key informants were drawn from diverse backgrounds. Another potential drawback of this type of research is the seemingly subjective nature of coding narrative. The high degree of inter-rater agreement, however, suggests that idiosyncratic interpretations and coding bias were kept to a minimum. Lastly, participants drew from knowledge of what occurred in the states they knew best, accounting for only about half of the United States. It is possible that additional factors are operating in other states. However, the country's eight geographic regions were well represented and several participants were familiar with the funding decisions in all 50 states.

In the next phase of the current research, a number of factors identified in Study 1 were operationally defined and modeled quantitatively. Limited data were available in quantitative form on all 50 states for these factors. Still, it was possible to apply multiple regression modeling to examine the relationships between the outcome and certain explanatory variables.

## STUDY 2

### Methods

#### *Research Design*

The goal of Study 2 was to develop a quantitative model that explained funding amounts in all 50 states using the top factors identified in Study 1. The research design of this analytic, observational study was cross-sectional, examining data at one point in time. The investigator determined the association between the outcome of interest and various explanatory variables and tested hypotheses about these associations. Cross-sectional designs are observational because the investigator does not assign exposure conditions. This study differs from the traditional cross-sectional epidemiological design in that the unit of study is the state instead of an individual.

When aggregated data are used in an observational study, the study design may be cross-sectional or ecological. Both designs can be used to identify clues to possible etiologies, establish research priorities, allocate resources, track changes over time, and generate hypotheses. Both designs can be used to examine groups at relatively low cost (Armitage & Colton, 1998). Data may come from existing sources and may address environmental issues that do not lend themselves to observational or intervention research on individuals (Armitage & Colton, 1998).

In both ecologic and cross-sectional studies, multi-group comparisons can be made of populations with different levels of exposure. However, in an ecologic study, only the marginal summary values of disease and exposure from a 2 x 2 table are known (Armitage & Colton, 1998). Though data were aggregated by state, it was possible to assess outcome and exposure for each individual state, making the design cross-sectional

instead of ecological. Ecological studies often involve a small sample size, which limits inference about associations between outcomes and exposures (Armitage & Colton, 1998). This study included all 50 states and the sample was large enough for valid inferential analysis (see power calculation below).

### ***Dependent Variable***

The outcome of interest was state appropriations for tobacco control. Several organizations are involved in tracking and reporting on state funding for tobacco control activities (CTFK, 2002; ALA, 2001; HPTS, 2001; HPTS, 2002; CDC, 2001; CDC, 2002; NCI, 2000; GAO, 2001). The Office on Smoking and Health at CDC, the Campaign for Tobacco Free Kids (CTFK), and the Health Policy Tracking Service of the National Conference of State Legislatures (NCSL) continue to track state appropriations for tobacco control on all 50 states. These three data sources were the ones considered for use in this study because comprehensiveness and continuity were desirable attributes for the outcome.

To track state tobacco control appropriations, staff in CDC's Office on Smoking and Health (OSH) along with consultants at Mayatech, a research contracting firm in Silver Spring, Maryland, developed a systematic method to identify appropriations. Trained legislative analysts at Mayatech carry out primary analysis of state settlement appropriations bills and resolve ambiguities in funding amounts according to proscribed rules. OSH analysts verify these amounts through contact with state budget officers. In addition, OSH analysts compile information from other sources of state tobacco control funding, including federal block grants, federal tobacco control funds, dedicated state excise taxes, American Legacy grants, and Robert Wood Johnson Foundation grants.

CDC reports annually on the tobacco disease burden and tobacco control investment in each state in State Highlights.

NCSL and CTFK derive state appropriations data from communication with state contacts, using settlement and dedicated excise tax allocations only. CTFK obtains tobacco control allocation data from state-level advocacy contacts and regional analysts and includes settlement and dedicated excise tax sources. NCSL numbers include only settlement revenue allocations and are compiled by contact with state legislative budget officers. Tobacco control is defined similarly by the three organizations. However, the CDC amounts are the highest because they include tobacco control funding from settlement, dedicated excise tax, federal and non-profit sources.

CDC tobacco control appropriations data from all sources for Fiscal Year 2002 were used in this study as the outcome of interest. The amount was expressed on a per capita basis to control for differences in state populations. The dependent variable was calculated as follows: aggregate amount of state tobacco control appropriations for FY02 as reported by CDC (2002) divided by state population numbers from the 2000 Census (Census Bureau, 2000). Fiscal year 2002 budget decisions were deliberated in 2000 and 2001 and took effect in July 2001. The 2000 census numbers were used because they reflect state population at the time appropriations decisions were made. Fiscal year 2002 was chosen because it is the most recently reported information on state tobacco control appropriations.

The data reveal that all 50 states are allocating some funds for tobacco control, though it is unclear exactly how the money will be spent. Annual tobacco control expenditure data for the 50 states collected under uniform conditions would be of great

interest to the field of public health but are currently unavailable. Studies have documented how much state governments spend on tobacco control in one year, but collecting this information is expensive and time-consuming (Gilpin et al., 2000). State expenditure data is the amount spent on tobacco control and prevention activities in the preceding year, which is different from the amount appropriated, or approved to be spent, for the following year. Currently, appropriations data are the best proxy for the amount states will spend on tobacco control and prevention activities.

### ***Independent Variables***

Potential independent variables were identified using the results of Study 1. The factors arrayed in Figure 9 were judged by key informants to be the major influences on state tobacco control funding. These factors were examined to see what quantitative data existed for all 50 states from secondary sources. Data were obtained from a variety of sources including research publications, university contacts, and government agencies (Yee & Schooley, 2001; Census Bureau, 2000; CDC, 2001; CDC, 2002; Department of Commerce, 2001; ALA, 2001; Berry et al., 1998; Beyle, 2000; HPTS, 2002; Barrett et al., 2003). Factors that were not analyzed further included: TOBACCO CONTROL LEADERSHIP, LEGISLATOR, COALITION, and DEDICATED FUNDS. Data for these factors did not exist in quantitative form or were only available for a few states.

The seven factors studied were BUDGET SITUATION, TOBACCO INDUSTRY POLITICAL ACTIVITY, TOBACCO ECONOMY, STATE PRIORITIES, GOVERNOR, TOBACCO CONTROL ADVOCACY, and PUBLIC OPINION. These factors are listed here in their order of importance according to key informant ratings (see Table 6). Factors are further described below in the same order, along with details about the measurements considered

and utilized to quantify the factors. Table 7 summarizes information on the seven factors, measurements, data sources, and expected relationships with the outcome measurement.

One general attribute of all independent variables is that to the extent possible, the data are from the year before consideration of the budget (i.e., 1998 or 1999 for fiscal year 2002 budget which is generally approved in 2000-2001). Ideally, the data reflect the situation that existed at the time budget decisions were being made. The data used in this study may have factored into the information government officials considered during the decision-making process. The year of the data was particularly important for data on the legislative and executive branches, in order to reflect the people in office at the time budget decisions were made. Few discrepancies existed between the year of the independent and dependent variables. If there was a discrepancy, the measure was relatively stable over time or was averaged to best represent the characteristic.

In addition to the seven factors, the effect of settlement type was also evaluated. Forty-six states were part of the MSA and four states reached individual settlements with the tobacco industry. Compared with the MSA, the individual settlements involved greater concessions by the tobacco industry to limit promotion of their product. The individual settlements also stipulated greater structure for how the revenue would be spent on public health by the four states compared with the MSA. Gross et al. (2002) did not find differences among states as a result of settlement type when testing economic and health variables. However, the current research used a different year of outcome data and analyzed other independent variables. To examine the effect of settlement type, the final model with all 50 states was compared with the same model having only 46 MSA

states. A 10% change in coefficients was the threshold used to make a determination of effect.

Budget situation. The term BUDGET SITUATION was defined for the purposes of this study as the general fiscal health of a state, and the availability of funds for allocation during the budget process. In Study 1, the importance of BUDGET SITUATION was mentioned during interviews by almost every key informant, and received the highest rating on every indicator in the modified Delphi process. State government officials are required to maintain balanced budgets and not spend more money than they take in (i.e., they are prohibited by law from legislating deficit spending). Therefore, periodic budget projections prompt government officials to modify state revenue and spending to meet this obligation. Forty states require the legislature to pass a balanced budget and 34 states require the governor to sign a balanced budget (NASBO, 1999). It was hypothesized that any limitation on budgetary flexibility would reduce the amount of funding for tobacco control.

Several measures were considered to reflect the fiscal health of a state. One key informant recommended using the measure--general fund balance as a percent of budget expenditures (NASBO, 2002). When this value falls below 5%, the state is approaching a budget deficit. In response, a state may use "rainy day" funds to remedy the projected deficit. Rainy day funds constitute a buffer that can be used to remedy a budget shortfall in a limited way. Once the funds are depleted, they must accumulate again in order to cover the next budget shortfall. Other methods used by state governments to remedy budget gaps include: initiating or increasing fees for specified services, reducing personnel expenditures by lay offs, furloughs or early retirements, across the board



percentage cuts that affect every agency in the state government, reductions in aid to local governments, reorganizing programs to increase efficiency, and privatizing government functions.

The distribution of this measure was skewed by several extreme values and was modeled as dichotomous. States that were approaching deficit conditions were coded as one, if the percentage fell below 5% in a two-year period (Fiscal Year 2000 or 2001), or zero otherwise (BALANCE). It was hypothesized that a negative association would exist between this variable and tobacco control funding.

Another measure of state fiscal health was whether or not states made reductions in enacted FY01 budgets (CUTS) (NASBO, 2002). This measure suggests that midyear projections of deficits prompted governments to reduce spending in order to prevent the fiscal situation from worsening. The last measure used to examine state budget situation was total state expenditures in 2000, which was a measure of budget variation across states (NASBO, 2002). These monetary data were transformed using the natural log and were expressed as a per capita amount using 2000 Census data on state population. A relatively low value could indicate that the government was conservative about spending or that the state was less affluent compared to other states (EXPEND).

Tobacco industry political activity. The term TOBACCO INDUSTRY POLITICAL ACTIVITY was defined as the political influence exerted by tobacco companies through lobbying efforts, campaign contributions, and litigation. Many respondents in Study 1 suggested the importance of this factor. Published research also supports the importance of this factor (Morley et al., 2002; Goldstein & Bearman, 1996; Mintrom, 2000; Gilpin et al., 2000; Shelton et al., 1998; Alciati et al., 1998; Monardi & Glantz, 1998) but at the same time

provides few comprehensive measures of industry activity for all states. Two measures were considered for quantitative analysis; one, which serves as a proxy measure of industry influence, is the presence of preemptive state legislation prohibiting stricter local ordinances on tobacco control. The second measure of state-level tobacco industry influence is the dollar amount of tobacco industry state lobbying budgets during the 1990s. These two measures were used to test the hypothesis that TOBACCO INDUSTRY POLITICAL ACTIVITY was negatively associated with state tobacco control funding.

The presence of preemptive state legislation has been used by other investigators as a proxy measure of the tobacco industry's political influence in states (Samuels & Glantz, 1991; Glantz & Begay, 1994; Monardi & Glantz, 1998; Siegel et al., 1997; Ritch & Begay, 2001b). The importance of preemptive legislation is that once such laws are passed at the state level, it becomes illegal for local governments to pass more restrictive tobacco control measures. Since tobacco control activity in states is often initiated at the local level, with ordinances passed by municipal or county governments, state legislation that hinders local tobacco control activity is very effective (NCI, 2000). Information on preemptive laws is available on all 50 states with four nominal levels, including preemption of stricter local provisions in the areas of youth access to tobacco, clean indoor air, tobacco advertising, and tobacco taxes (ALA, 2001). For the purposes of this study, the measure was made dichotomous, as a reflection of whether or not the state had any preemptive ordinances (PREEMPT).

The second measure, the lobbying budget for the Tobacco Institute (TI) during the 1990s, is a rare indicator of the monetary resources devoted to each state by the tobacco industry. Established in 1958 in Washington, the Tobacco Institute has carried out lobbying

and public relations activities for the tobacco industry in every state since that time, receiving annual funds from each tobacco company in proportion to the company's share of the tobacco market (Kluger, 1997).

Previously secret documents were examined by Morley et al. (2002) to identify the TI state lobbying budgets during the periods 1991-1992 and 1994-1997. This period of time was important because of the intensive state and federal tobacco control activity, including Medicaid lawsuits, ASSIST funding, and congressional deliberation on the National Tobacco Settlement. The average dollar amounts include TI funding for state and local lobbying activities and special projects. The researchers point out the limitations of these data when examined as absolute amounts, because much state lobbying activity remains undocumented (Morley et al., 2002). However, they assert that the data can be used as a relative measure of industry activity at the state level. These monetary data were transformed using the natural log and were expressed as a per capita amount using 2000 Census data on state population (LOBBY).

Tobacco economy. The term TOBACCO ECONOMY was defined for the purposes of this study as the measurable economic activity in the state derived from tobacco farming, manufacturing and related tobacco industry income. In Study 1, many key informants stressed the importance of this factor in the interview process and most of the respondents rated this factor as having major importance during the modified Delphi portion. One key informant advised modeling tobacco economic activity as present or absent in the state instead of as a continuous monetary amount, by saying "A state is either producing or not...I don't think that the level of tobacco farming or manufacturing is really important." Also during the interviews, several key informants asserted their belief that this factor would

matter only in six to twelve major tobacco-producing states. Therefore, the value of tobacco economy for a state was made ordinal instead of continuous.

The measure of TOBACCO ECONOMY chosen for this study was financial in nature. Gross State Product (GSP) from tobacco was suggested by a key informant and supported by the literature. This person recommended that consideration be given to GSP as a comprehensive measure of tobacco's contribution to the state economy, from farming, manufacturing and related tobacco industry activities. Gross State Product from Tobacco is reported annually for each state by the Bureau of Economic Analysis in the US Department of Commerce. Tobacco GSP, the measure used to test the effect of TOBACCO ECONOMY, was hypothesized to have a negative association with the outcome since state government officials could be expected to refrain from taking actions at the legislative level that are not in the financial interest of industries in the state.

Total gross state product includes economic activity generated by three sources: private goods-producing industries, private services-producing industries, and government. This measure provides data by industry and by state that are consistent with gross domestic product (GDP) for the nation (Panek & Obidoa, June 2003). GSP is the value added to GDP by each industry in each state and is equal to an industry's gross output (sales or receipts and other operating income, commodity taxes, and inventory change) minus intermediate inputs (consumption of goods and services purchased from other United States industries or imported) (Panek & Obidoa, June 2003). In practice, GSP estimates are the sum of the costs incurred and incomes earned in the production of GDP.

GSP is prepared for 63 industries and is presented in three parts: compensation of

employees, indirect business tax and non-tax liability, and property-type income.

“Compensation of employees is the sum of wage and salary accruals, employer contributions for social insurance, and other labor income; property-type income is the sum of corporate profits, proprietors’ income, rental income of persons, net interest, capital consumption allowances, business transfer payments, and the current surplus of government enterprises less subsidies” (Panek & Obidoa, June 2003, p. 63). “GSP captures the relative differences across states in goods and services, but does not capture geographic differences in the prices of goods and services produced and sold locally” (Panek & Obidoa, June 2003, p. 63).

State priorities. The term STATE PRIORITIES was defined as the priority given to tobacco control and other issues by the government, including unmet and emerging needs. Besides the measures considered in public opinion, the measures available for this factor were limited. Three variables were used to conceptualize this factor quantitatively, including: a rating of the fairness of a state’s tax policy, an index of the liberalism of government officials, and the proportion of women in state legislatures. These measures were associated with more progressive policy action at the state level in previous studies.

Tax fairness, an ordinal variable, was a rating of how progressive state tax policy was judged to be by a panel of experts at Congressional Quarterly, a respected organization that studies and reports on federal, state, and local governments (Barrett et al., 2003). This rating was based on how equitably taxes were shared in each state by different sectors of society (income, sales, and property taxes from citizens and businesses). Tax equity was defined as collecting the lowest possible rates on the widest possible base of taxpayers. States were ranked from 1 to 4 with 1 corresponding to the lowest tax fairness level and 4, the highest (TAXFAIR). A relationship between this

variable and the outcome could indicate that states with more progressive tax policy were also more likely to fund tobacco control.

The government liberalism index is based on roll call votes in the state legislature and assessments by interest groups of overall legislative performance by state (Berry et al., 1998). The continuous variable was first published in 1998 and then updated in 1999. This measure is a general indicator of state government values (GOVT).

The impact of women on state legislative policies has been studied extensively in the last decade. Greater numbers of women legislators in a state have been associated with more progressive government policies (Tolbert & Steuarnagel, 2001). Thomas (1991) examined the policy priorities of women in state legislatures and found that states with the highest percentages of female representatives introduce and pass more priority bills dealing with issues of women, children, and families than men in their states. Balla and Nemacheck (2000) studied cosponsorship of managed care legislation and found that female legislators were more active cosponsors than male legislators of bills addressing particular managed care practices. Garand & Monroe (1995) developed a model to explain states' adoption of family leave laws after federal policy changed in the 1980s. They found political variables were important in explaining state policy choices, namely partisan control of state government and proportion of women in the state legislature. Overall, these studies suggest that health and youth related issues are placed on the agenda more frequently in states that have a higher proportion of women legislators. Since tobacco control is both a health and youth issue, it was hypothesized in the current research that the percentage of women in state legislatures would be positively associated

with funding (WOMEN). The measure was expressed as a percent and reflected the situation in 2000.

Governor. The governor, as the head of the state's executive branch, plays a critical role in the budget proposal, approval and implementation process. Regardless of positions on tobacco control, governors were judged to be influential by the majority of key informants in Study 1. The two measures of GOVERNOR analyzed in this study were political party and index of authority. It was hypothesized that the greater the authority of a Democratic governor, the higher tobacco control funding in a state would be.

Party control of the Governor's office was recommended by key informants as a proxy of governor's support for tobacco control. Party control of the governor's office or the legislative majority is a crude indicator of state priorities. Studies provide evidence that Republican controlled legislatures tend to spend less on health issues, resist regulation and taxation and receive greater campaign contributions from the tobacco industry (Brace & Jewett, 1995; Brown, 1995). More liberal leaders were thought to be more likely to fund tobacco control programs (Hero, 1998). Party control has been associated with tobacco control policy outcomes in previous studies and data on this political characteristic of states are readily available (Watson, 1998; Chriqui, 2001).

Data were obtained from NCSL reflecting the political party of the governor in power in 2000. This measure was made dichotomous as an indicator of liberalism. Independent (2 states: ME, MN) and Democratic governors (18 states) were combined into one category (coded as 1) and compared to 30 Republican governors in a second category (coded as 0) (GOVPARTY).

Authority over budget decision-making varies by state, with governors having different levels of power in the budget process. In forty-two states, the governor has line-item veto authority and can veto components of the legislative budget on a line-by-line basis during the budget approval process (NASBO, 1999). In addition, the governor's authority to control state functions extends beyond the budget process and varies by state. Without approval of the state legislature, 24 governors may reorganize state departments, 31 may spend unanticipated federal funds, and 37 may reduce approved budgets (NASBO, 1999).

The political science literature offered a measure of the governor's authority. An index was crafted using six measures of institutional power -- tenure, appointment power, the number of other statewide elected officials, budget power, veto power, and party control (Beyle, 2000). The governor's authority index was used to account for state variability in the governor's role (GOVPOWER). This ratio variable reflected the general authority exercised by the governor in each state and was hypothesized to modify the effect of political party. The interaction of governor party and governor authority was also tested. Collinearity of the two variables was explored since party control was an element of the authority index.

Another measure that was suggested by key informants was issuance of executive plans for tobacco control after the settlements, as this was thought to portray a governor's leadership. However, states were required by the federal government to produce a plan to obtain annual funding from the National Tobacco Control Program. Thus, more meaningful variables would assess plan quality or the timeframe within which a plan was released, instead of the presence or absence of a plan. These quantitative data were not



available. Therefore, no measure of the governor's specific position on tobacco control was pursued.

Tobacco control advocacy. The TOBACCO CONTROL ADVOCACY factor refers to the competency of individuals or groups who speak out publicly and advocate for tobacco control from outside the government structure. Typically, tobacco control advocacy comes from a variety of organizations, such as voluntary health organizations (American Lung Association and others), professional health associations, and research institutions. A proxy measure, used in this study to reflect the strength of advocacy groups, was the amount of state excise tax on cigarettes at the end of 2000 (EXCISE). Tobacco excise tax increases have been documented to decrease cigarette consumption especially for those with low income including young people. This variable was modeled as a continuous monetary amount and was hypothesized to have a positive association with the outcome.

The second measure of TOBACCO CONTROL ADVOCACY was the number of youth access provisions passed by the state legislature by the end of 1998 (MINOR) (Chriqui, 2001; NCI, 2000). This measure ranged from 0 to 9 and was a simple measure of the previous success advocates had achieved in the state.

Public opinion. PUBLIC OPINION was defined as the priorities of the general population and public support for tobacco control. Quantitative data on attitudes in the general population regarding tobacco control (ATTITUDE) are available through the Tobacco Supplement to the Current Population Survey (CPS). A proxy from PUBLIC OPINION was available from the citizen liberalism index (LIBERAL) (Berry et al., 1998). Similar to the party control indicator discussed above, liberalism has been associated with

certain policy innovations in states, including tobacco control activities. This index combined voter's support for various congressional candidates with liberalism scores the candidates received from interest groups.

Two measures of tobacco consumption were also used as a proxy for PUBLIC OPINION. Adult smoking rate (RATE) was previously found to have a negative association with state tobacco control funding and it was tested again in this study (Gross et al., 2002). The amount of cigarette packs sold per capita (CIGPACKS) was also used as a measure of public opinion. Favorable attitudes toward tobacco control and liberal ideology were expected to be positively associated with the outcome. Conversely, adult smoking rate and packs sold per capita were hypothesized to have a negative association with the outcome.

Public attitudes on smoking bans is measured by the Census Bureau periodically. The CPS is an instrument that primarily assesses employment status in the general population several times a year. Supplemental surveys on various topics are added to the CPS in order to assess additional population variables of interest to the federal government. Beginning in 1992 and occurring every 3 years, the supplemental survey has assessed tobacco usage patterns and attitudes toward clean indoor air regulations in various public places. The 1998-99 survey results were used as a measure of PUBLIC OPINION about tobacco control (ATTITUDE).

Attitude measures are expressed as the percent of respondents who supported smoking bans in the following public places: restaurants, hospitals, indoor work areas, bars, sports events, and malls. Categorized by smoking status, these national measures showed wide variability among current, former and never smokers. Of the six public

places, a majority of respondents agreed on smoking bans in hospitals, sports events and malls (50% to 88%). Smoking bans in indoor work areas were nearly supported by a majority of respondents (43%, 67%, and 77%). Former and never smokers strongly supported bans in restaurants but not bars (51% and 63%, 28% and 38%). However, there was minimal support from current smokers for bans in restaurants and bars (22% and 8%). The regression analysis was carried out on attitude measures by smoking status.

The second measure of PUBLIC OPINION was indirectly tied to tobacco control. The citizen liberalism index is based on voting behavior in general elections for congressional candidates whose ideology is assessed and weighted by the percentage of the population that voted for them (Berry et al., 1998). This measure was published in 1998 and updated in 1999 after the 1998 elections (LIBERAL). The connection between tobacco control and citizen liberalism is supported by research showing liberal populations and governments had more progressive and innovative tobacco control policies (Watson, 1997; Chriqui, 2001).

PUBLIC OPINION may also be reflected in adult smoking rate, which has been negatively associated with state tobacco control (Gross et al., 2002). For this study, the measure of adult smoking used was the rate per 100,000 people averaged from 1996 to 2000 (RATE) (CDC, 2001). Packs of cigarettes sold per capita was a measure of consumption used as a proxy for the general public's support for tobacco control which was expected to be inversely related to the outcome (CIGPACKS) (CDC, 2002).

### ***Quantitative Analyses***

Variables that were non-linear or had skewed distributions were log transformed and approached normal distributions. For bivariate analysis of the relationship between the

outcome and potential factors, simple linear regression was used. Independent variables with  $p < 0.2$  in bivariate analysis were further examined in multivariate analysis. Ordinary least squares estimation with manual variable selection was used to generate multiple regression models (Kleinbaum et al., 1998; Cohen & Cohen, 1983; Greenland, 1989). The regression coefficient ( $\beta$ ) for each independent variable provides an estimate of the change in the outcome that accompanies a unit change in the independent variable, while holding the values of the other independent variables constant (Wonnacott & Wonnacott, 1984).

Unlike the Gross et al. (2002) study, which involved forward stepwise regression, this study utilized the change-in-estimate approach with variables selected based on relative or absolute changes in the estimated coefficient (Greenland, 1989). Stepwise regression is appropriate when the sample size is large and when the model will be used as a prediction tool. In the current research, the sample size was small and an explanatory model was sought.

Variables remained in the model if they were significant at  $p < 0.05$  or if they were of particular interest in the study (Greenland, 1989; Wonnacott & Wonnacott, 1984). Because of finite-sample bias, the most parsimonious regression model was sought (Greenland, 1989). Variables were eliminated if they did not fall into one of these categories. While bivariate analysis revealed significant associations between funding and explanatory factors, some associations did not remain after multivariate analysis. The variables that did remain in the final model had stronger associations with the outcome and were better explanatory variables than the ones discarded.

Collinearity was examined by checking the correlations among independent variables. Pairs of variables with a correlation of  $\pm 0.5$  or more were considered to be

collinear. When collinearity was identified, the measure with the strongest relation to the outcome in bivariate analysis was chosen for further analysis.

Random assignment of levels of exposure to prevent biased results is not possible in observational studies. Therefore, regression equations must adjust for confounders of the relationship between outcome and exposure in order to reduce bias. A potential confounder was population differences among states. To prevent confounding, monetary variables were expressed as per capita amounts, using the same 2000 Census data used to construct the dependent variable.

Multiple linear regression in its simplest form assumes that the effects of all the factors, weighted by their coefficients, are additive. However, if effects larger or smaller than sums of the effects of a combination of factors are encountered, then they may be accounted for by interaction terms that can be tested in the model. The analysis tested the interaction term for governor party and governor authority.

For the final model, several diagnostic tools were used to check goodness of fit, adherence to model assumptions and the influence of outliers.  $R^2$ , the amount of variance of the dependent variable accounted for by the model, is generated in regression analysis and provides a measure of goodness of fit for each independent variable as well as for the final model. The F statistic provides another indicator of how well the model fits the data by estimating whether the entire set of independent variables contributes significantly to the prediction of the outcome.

Diagnostic plots were examined to see if the model assumptions for linear regression held. Scatter plots of the dependant variable against each independent variable were used to examine linearity. Regression residuals plotted against predicted values

checked for homoskedasticity or constancy of variance. Normal probability plots of the residuals provided for normality checks. Potential outliers were identified by calculating Cook's distance (Kleinbaum et al., 1998). Delta beta values were calculated to examine influential values for each independent variable.

All analyses were carried out using Stata 7.0 (Stata Corporation, 2001).

### ***Power and sample size***

Because the population was limited to 50 states, the ability to detect a moderate correlation ( $r=0.35$ ) existed at  $p<0.05$  with 80% power (Hulley & Cummings, 1988, p. 218). To maximize power, data was analyzed efficiently by modeling variables as continuous or ordinal when possible. Multiple levels of categorical variables were combined, if the mean values of the dependent variable at different levels were similar.

### **Results**

Seven factors were operationally defined using 18 measures. Thirteen met the criteria for further consideration in multivariate analysis, by being associated with the outcome ( $p<0.2$ ) in bivariate analyses. The process of variable selection for the final regression equation is detailed, as well as the model diagnostics used to judge goodness of fit.

### ***Univariate and Bivariate Analyses***

Tobacco control appropriations. The outcome of interest (FY02 per capita tobacco control appropriations) had a skewed distribution, a common trait of monetary data (Wonnacott & Wonnacott, 1984). In economics, quantity as a function of price often exists on a multiplicative scale (Wonnacott & Wonnacott, 1984). When price is log-transformed, it often becomes additive and easily estimated with multiple regression. The natural log of per

capita state appropriations had a distribution that approached normality and the transformed variable was used for all analyses. This feature made the regression analysis linear in the log scale and affected the interpretation of the results. The coefficient was an estimate of proportional change in the outcome corresponding to a unit change in the independent variable (Wonnacott & Wonnacott, 1984). Some independent variables (LOBBY and EXPEND) were also log transformed to achieve linearity and homoskedasticity. For these variables, the regression coefficient estimates the proportional change in outcome corresponding to a specified proportional change in the independent variable.

Budget situation. Budget BALANCE was dichotomous and negatively associated with the outcome (adjusted  $R^2=0.05$ ,  $p=0.07$ ,  $\beta= -0.52$ ). States that had gone below 5% balance as a proportion of expenditures allocated 42% less than states that had not gone below the 5% balance. Budget CUTS were not associated with the outcome (adjusted  $R^2=0.006$ ,  $p=0.26$ ,  $\beta= -0.32$ ). State expenditures per capita (EXPEND) was log transformed and found to be positively associated with the outcome (adjusted  $R^2=0.07$ ,  $p=0.04$ ,  $\beta=1.09$ ).

Tobacco industry political activity. Descriptive analysis of state preemption data (PREEMPT) showed 27 states had one or more state preemptions on stricter local ordinances. In bivariate analysis, the dichotomous measure was negatively associated with the outcome (adjusted  $R^2=0.16$ ,  $p=0.002$ ,  $\beta= -.81$ ). This finding can be interpreted as states with preemptive tobacco control laws allocated 44% (or 56% less) of what states without preemptive laws allocated for tobacco control.

The natural log of the lobbying budget per capita was positively correlated with the outcome ( $r=0.51$ ). In bivariate analysis, the continuous measure was significantly

associated with the outcome (adjusted  $R^2=0.22$ ,  $p<0.0005$ ,  $\beta=0.68$ ). The exponentiated coefficient equaled two, which estimated that appropriations would increase four-fold when the lobbying budget doubled.

Tobacco Economy. Data on tobacco GSP in 2000 were obtained for each state (Dept. of Commerce, 2001). In order to make a fair comparison across states, the proportion of total GSP from tobacco was computed. This proportion reflected the size of the contribution tobacco made to the state economy. Twenty-six states had a non-zero amount from farming, manufacturing and related tobacco industry income. The top ten tobacco-producing states based on the proportion of tobacco contribution to GSP were: AL, CT, FL, GA, KY, NC, NY, TN, VA and WV. Fourteen additional states had a nonzero amount of tobacco GSP in 2000 (CA, IN, LA, MD, MI, MO, NE, NV, NJ, OH, OK, SC, TX, WI).

As a continuous variable, tobacco GSP appeared to have a non-linear relationship with the natural log of the outcome variable. Several states had extremely high values and many variables clustered together with small values. The division into low and high was made at the level of 0.03% of GSP from tobacco, which grouped non-zero values into two similar-sized groups. States with a small amount (16 states) and those with a large amount (10 states) of tobacco GSP were compared with states with no tobacco GSP (24 states). A plot of the three categories against the outcome appeared linear, indicating categorization of the variable was appropriate (see Figure 10). GSP had a strong negative association with the outcome (adjusted  $R^2=0.27$ ,  $p<0.0005$ ,  $\beta= -0.66$ ). Tobacco control funding was 49% less in states with GSP from tobacco compared to those with none.

State priorities. The tax fairness (TAXFAIR) rating had a positive correlation with the outcome ( $r=0.45$ ). The bivariate analysis revealed a strong positive association with the



outcome (adjusted  $R^2=0.21$ ,  $p<0.0005$ ,  $\beta=0.74$ ). Tobacco control funding increased two-fold with every unit change in tax fairness. Government liberalism (GOVT) was not significantly associated with the outcome ( $p=0.24$ ). The measure WOMEN was positively correlated with the outcome ( $r=0.34$ ). The bivariate analysis revealed a significant association with the outcome (adjusted  $R^2=0.08$ ,  $p=0.026$ ,  $\beta=0.041$ ). The interpretation of the coefficient is that for every percentage point increase in women legislators, the outcome increases 4%. If a state had 10% more women legislators than the mean value, it is estimated that the state would allocate 50% more for tobacco control funding. State legislatures are composed of 22% women on average, with a range of 8% to 39% women across states.

Governor. Governor's Democratic political party affiliation (GOVPARTY) was positively associated with the outcome (adjusted  $R^2=0.03$ ,  $p=0.14$ ,  $\beta=0.417$ ). Governor authority index (GOVPOWER) had a positive association (adjusted  $R^2=0.03$ ,  $p=0.12$ ,  $\beta=0.503$ ). These two measures were considered together and their explanatory value increased to adjusted  $R^2=0.09$ . The interaction term was added to the regression model, but was not significant.

Tobacco control advocacy. The state excise tax (CIGEXCISE) at the end of 2000 was positively correlated with the outcome ( $r=0.38$ ). The bivariate analysis showed a significant relationship with the outcome (adjusted  $R^2=0.11$ ,  $p=0.01$ ,  $\beta=1.24$ ). For every dollar increase in the state excise tax, the amount of tobacco control funding increased two and a half times. For every \$0.10 increase in the excise tax, funding increased 13%. The number of youth access restrictions (MINOR) on tobacco passed by a state in 1998 was not significant ( $p=0.69$ ).

Public opinion. Citizen liberalism (LIBERAL) was positively correlated with the outcome ( $r=0.36$ ). In bivariate analysis, the continuous measure was significantly associated with the outcome (adjusted  $R^2=0.11$ ,  $p=0.01$ ,  $\beta=0.024$ ). For every unit increase in citizen liberalism, tobacco control funding increased by 2%. For every 10 point increase in liberalism, funding increased 27%.

The CPS attitude data (ATTITUDE) by state were analyzed according to smoking status and as an overall attitude value for the state. Attitude measures were significantly related to the outcome, including all measures related to smoking bans in malls, hospitals, indoor worksites, and sports events. An average of the four overall measures was calculated and found to be positively associated with the outcome (adjusted  $R^2=0.09$ ,  $p=0.02$ ,  $\beta=0.051$ ). With every increase in the percentage of people in the state supporting smoking bans, funding increased by 5%.

Average adult smoking rate (RATE) from 1996 to 2000 was negatively correlated but not significantly associated with the outcome ( $p=0.38$ ). The variable CIGPACKS was negatively correlated with the outcome ( $r=-0.26$ ). The bivariate analysis showed a significant effect of this variable on the outcome (adjusted  $R^2=0.04$ ,  $p=0.09$ ,  $\beta=-0.008$ ). This estimate indicates that with every 10 pack increase, tobacco control funding goes down 8%.

### ***Multiple Linear Regression Model***

Table 8 displays the regression coefficients and standard errors of the bivariate analyses and the final model. The final model contained five variables: GSP, LIBERAL, PREEMPT, GOVPARTY, GOVPOWER. Variables remained in the model if they were significant at a level of  $p<0.1$ . Though the significance level was set at 0.05 in the

dissertation proposal, there were two variables that were only slightly above the 0.5 level and were perceived to be important based on the results of Study 1. From interviews and ratings, key informants conveyed the importance of the role of governor in determining state tobacco control funding. As described above, two measures relating to the Governor's position showed an interesting combined effect and no interaction. These two variables were included in the final model since they were of particular interest to this study.

Several variables were considered collinear; the variable with the weaker bivariate result was eliminated in favor of the variable that had the stronger association with the outcome. As the full matrix in Table 9 shows, collinearity was observed in several combinations of factors: among CIGPACKS, EXCISE, and ATTITUDE and among GSP, LOBBY, ATTITUDE, and TAXFAIR. None of the five variables in the final model were correlated above  $\pm 0.5$ .

The regression results are presented in Table 10. The regression equation is:  $\log(\text{fy02pc}) = \beta_0 + \beta_1 \text{gsp} + \beta_2 \text{preempt} + \beta_3 \text{liberal} + \beta_4 \text{govpower} + \beta_5 \text{govparty} + \varepsilon$ . The estimated mean can be expressed as:  $Y = (0.346) + (0.559) \text{gsp} + (0.626) \text{preempt} + (1.018) \text{liberal} + (1.617) \text{govpower} + (1.502) \text{govparty}$ . The goodness of fit of this combination of variables was indicated by a significant F statistic [ $F(5, 44) = 10.41, p < 0.00001$ ] and roughly half of the variance explained by the model (adjusted  $R^2 = 0.49$ ). Table 11 displays the descriptive statistics for these five variables. Table 12 presents the state-by-state data used in this analysis.

As planned, a comparison of the 50-state and 46-state models was carried out to see if settlement type (individual state settlement or combined multi-state agreement with

the tobacco industry) made a difference in the results. There was minimal change in coefficients. Therefore, the data and calculations on all 50 states were retained in the final model.

### ***Model Diagnostics***

Inference in linear regression requires that certain assumptions be met; these assumptions were evaluated using diagnostic plots. Scatter plots of residuals against each independent variable were used to examine linearity and no non-linear patterns were evident (see Figures 10 through 14). Residuals plotted against predicted values indicated homoskedasticity or constancy of variance of the residuals (see Figure 15). Normal probability plots of the residuals confirmed that the residuals followed an approximately normal distribution. Lastly, the structure of the data was based on 50 independent observations, satisfying an additional assumption of linear regression.

Outliers and influential values were examined using Cook's distance and delta beta calculations. Distance values ranged from .0001 to .118 and did not reflect any outlying values. Delta beta values revealed several influential states for the five independent variables. For GSP, Alabama, Florida, North Carolina, Tennessee, Utah, Virginia had influential values ranging from -.60 to .38. For PREEMPT, Alabama, Kansas, Ohio, and Utah were influential (-.34 to .46). For GOVPOWER, Utah and Vermont had influential values (-.43 and -.38). For GOVPARTY, Alabama was influential (-.29). For LIBERAL, Kansas, Utah and Vermont were influential (.31 to .37).

### **Discussion**

Settlement payments began in 1998 and state legislators have had several years to establish their intentions. Data from the recent budget cycle shows that all states are

appropriating some amount for tobacco control, whether from settlement revenue or some other funding source. Generally, states that funded tobacco control in the early years continue to fund tobacco control. Therefore, it is anticipated that the outcome variable for fiscal year 2002 will be related to future appropriations and the findings from the current research will be useful in future years. The external validity or generalizability of the results is high. Selection bias was not possible since data were available for the entire population of states. Information bias was judged to be minimal and, if present, nondifferential (bias toward the null hypothesis).

The validity of the outcome variable was reduced by slight lack of comparability of the measure across states. In two states (HI, OH), the outcome included large allocations that would remain in trust funds after the fiscal year ended, which was not comparable to the amounts other states allocated for use during the fiscal year. Comparability across states, and thereby validity, was diminished because the outcome reflected what some states spent on tobacco control in one year and what other states put aside for future years. In addition, cuts to enacted budgets changed the amount appropriated for tobacco control mid-year and did not take place in all states. Finally, the difference between what states appropriate and what states spend on tobacco control is unknown and is a limitation of the outcome data.

Researchers in comparative state policy have observed that comparison often facilitates explanation, as it did in the quantitative analysis of funding levels in the 50 states. Finding patterns among states is possible as seen in numerous bivariate relationships between explanatory variables and the outcome of interest. Seven major factors were quantified and their explanatory value was assessed using linear regression model. The current research did

not examine measures that were available on a limited number of states because a partial model might have been misleading when making inferences about all 50 states.

The results of Study 2 provide support for the results of Study 1. However, many of the 26 factors from Study 1 could not be tested quantitatively because data were not available for all 50 states. It is difficult to draw conclusions from the final regression model because of limitations of the quantitative data. For example, the most important factor identified by Study 1 was BUDGET SITUATION, which was very difficult to model. Few measures were available that adequately reflected fiscal health across states. The explanatory potential of the data that was available was reduced when the variables were made dichotomous. No budget measures remained in the final regression model. In addition, it is difficult to make inferences about which influences were operating on which people because the results are from aggregated state data. To avoid the ecological fallacy, inferences cannot be made beyond the aggregate level.

The fallacy of misplaced concreteness points to the limitations of quantitative results in explaining complex phenomena. While the outcome measure is available in quantitative form, it has limited usefulness in understanding what types of tobacco control and prevention activities are funded, how they are implemented and whether they are effective. These qualities are an important focus of public health scrutiny and should be studied further. The independent variables have even less concrete connection to the factors because existing data and proxy measures were used instead of collecting original data designed to assess each factor.

The determinants included in the final model are enduring characteristics of states and are fairly stable over time. This reliability means that any discrepancy between years of

outcome and explanatory variables are probably of little importance. It also means that variables associated with the outcome may be unlikely to change. However, this information provides a way of identifying states with certain characteristics and anticipating future funding levels.

The findings are explored with the above cautions. Tobacco Gross State Product, the measure in the final model with the highest coefficient, may have direct or indirect effects on state legislators. An indirect effect would be from the pressure legislators are under to maintain strong state economic conditions. The negative association that was found between tobacco economy and state tobacco control funding could mean that state government officials are reluctant to fund tobacco control programs because it would hurt the state economy. Tobacco industry influence in states whose economies are dependent on tobacco may naturally exist without additional lobbying in these states.

A direct effect would be if tobacco GSP were a proxy for lobbying resources devoted to the state by the tobacco industry. In states that eliminate tobacco GSP from their economy, tobacco control funding could increase according to this model. However, this connection would need further study before intervention was warranted. Other benefits may accrue to state legislators that are not accounted for by tobacco GSP. Therefore, changing tobacco GSP may not have an effect on legislative outcomes and may not be the appropriate focus for intervention.

Lobbying budget had a positive association with the outcome ( $r=0.5$ ) and was negatively correlated with tobacco GSP ( $r=-.65$ ). Based on these results, tobacco GSP may have an indirect effect on legislators and the tobacco industry may concentrate lobbying resources in states without this economic influence. The tobacco industry may actively

influence state legislatures to be sympathetic to their interests when there are no other economic ties. Because the data are cross-sectional, the temporality of whether high funding or high lobbying came first cannot be established.

Possibly, public health attention could be concentrated on states without an economic connection to tobacco of which there are 24. Once these states fully fund effective tobacco control programs, the other 26 states could then become the focus. Of these 26 states, 16 have small amounts of GSP contributed by tobacco. Future advocacy efforts could focus on facilitating further divestiture of these state economies from tobacco. Advocacy could also focus on increasing tobacco control funding to these states from outside sources, bypassing state government policy. Advocacy efforts could intensify in these 16 states to see if focused efforts could overcome this connection to tobacco economy. If the social norms and culture of a state change, then behavior may change without addressing the economic incentives to state economy. Finally, the top 10 tobacco producing states may require intensive programs to transition from their current economic emphasis on tobacco. However, this undertaking may not be the best focus for public health efforts. Gladwell (2000) asserts that once a tipping point of policy adoption is reached, the remaining “late adopters” will quickly join the new norm.

Given the complexity of the political milieu within individual states and the variability between states, many more variables may be needed to fully explain this outcome measure in a quantitative model. A limitation of the quantitative analysis is that the power to detect a difference is limited by the number of observations. For a regression model to be stable, the analysis should include at least 10 observations per predictor (Nunnally & Bernstein, 1994). This is based on the fact that the degree of finite-sample bias present in



modeling results tends to be directly proportional to the number of variables entered in the model (Greenland, 1989). However, some value was obtained by pursuing the quantitative model since a few variables were able to account for a substantial amount of variance in the outcome measurement.

Further quantitative exploration is warranted. It may be possible to identify quantitative data on the 15 remaining factors in the coding scheme, which had lower ratings of importance. However, the most promising quantitative measures were explored in the current research using available data. Adding variables to the final model would risk exceeding the limits of the sample size and analysis constraints. To avoid this, collecting original data may provide greater efficiency in the explanatory measures, making it possible to use fewer variables and account for more variance in the outcome measure.

While cross-sectional studies cannot establish temporal ordering of possibly causal events, causal links may be suggested by the results (Hulley & Cummings, 1988; Kelsey, Thompson, & Evans, 1986). A series of cross sectional surveys over time can monitor changes in a population and provide evidence of trends. A strong causal link can be suggested by serial cross-sectional data (Armitage & Colton, 1998). Further study or additional evidence may then confirm causality. This study sought an explanatory model of the outcome, although a predictive model could be pursued by examining the explanatory value of this model for future cross-sectional data on tobacco control funding.

## **GENERAL DISCUSSION**

The goal of this research was to systematically identify important influences at the state government level to explain state appropriations for tobacco control and prevention activities. Because prior work has not yielded a clear understanding of how tobacco control appropriations are determined, there were many related studies suggesting what might be important but very few definitive studies on this topic. The one published study of state tobacco control appropriations after the settlements could not explain the outcome using state economic indicators and tobacco health burden indicators (Gross et al., 2002).

The methods provided a means of identifying and conceptualizing important factors and testing their explanatory power in a quantitative model. The qualitative methods contributed to the validity of the quantitative analysis. The key informant interviews and modified Delphi process allowed efficient use of participants' time. In addition, the qualitative methods provided rich data for answering the research questions, formulating hypotheses, and identifying promising areas for further study. Interviews were conducted to identify additional information about state policy-making not evident from the literature and to better conceptualize important influences. Key informants were national experts with many constraints on their time; interviews were conducted as a means of encouraging maximum participation. From the interviews, a comprehensive list of 26 factors was derived. The ratings were used to prioritize the factors and winnow down the list based on perceived importance. Finally, a comprehensive framework and a framework of hypothesized relationships were devised to guide research in this area. The qualitative research methods used here have value alone or in combination with quantitative

model building. When used together, they increase the validity of quantitative analyses and allow stronger statements about the results and their implications.

These methods also facilitated doctoral research training by allowing the investigator to collaborate with a larger community of experts than could exist at any one graduate school. By recruiting experts to participate in a study, the relationship was formalized between people who may be inclined to compete under other circumstances. This structured way of seeking answers allows science to move forward faster, because more informed hypotheses are formulated and tested.

The results of this research suggest several promising directions for public health action and future research. Securing funding is an important first step toward comprehensive tobacco control programs. The implementation of funding decisions is also an important focus for public health research to understand the critical steps toward achieving public health goals. Evaluating the effectiveness and public health impact of tobacco control and prevention activities in all 50 states will further elucidate the components for success. Additional research is needed on what activities are funded with state appropriations, whether these activities are evidence-based and effective, and what impact these programs have on health behaviors and public health outcomes.

The results of Study 1 strongly support the importance of five factors that were political in nature and unrelated to tobacco control advocacy efforts. Economic and political influence of the tobacco industry, budget constraints, state priorities and the governor's role were perceived by experts to be the most important determinants of state tobacco control funding. Specific questions that need to be answered are what interventions have been effective in addressing these factors and how public health advocacy should be modified.

Tobacco control leadership was the sixth factor in order of importance. Currently,

there is a disconnection between public health strategy and the political reality that drives appropriations. Improving advocacy strategy is the main implication of these results for public health. Other barriers to achieving adequate tobacco control funding include state economy and culture, as well as tobacco industry political activity. These factors cannot be addressed until sufficient funding is allocated for tobacco control and prevention activities.

A rational model falls short of explaining the complexity of the policy-making process, by reducing decision-making to a systematic review of information under ideal conditions by objective individuals. What may seem like human vulnerabilities or imperfections when a rational approach is desired are actually features that make humans able to adapt to diverse environments. Political decisions are not based on the weight of scientific evidence and are not partial to experts in the public health community. Instead, decisions are made by groups of people balancing public interest and their own self-interest in being reelected. The unpredictable interaction between the agents within a system to improve their own functioning and the functioning of the system is a classic example of complex adaptive systems.

French (1992) points out the tradeoff in policy decisions between excellence and relevance. Others have characterized legislative action as socially sanctioned conflict (Schattschneider, 1975). Legislators are put in place to deliberate issues that are important to the public interest and to special interests. They do not necessarily succeed in changing policy every time an important issue is discussed.

Some theorists have reduced legislative function to keeping bad laws from passing, instead of active pursuit of good laws. Members of the public may find it disillusioning for

legislators to be conservative instead of activist. However, theorists have pointed out that this approach to change is actually a feature of sound government—that legislators exercise caution, maintain stability in government functions, and allow incremental, instead of drastic, changes in policy. According to some, power should be used to move things in the right direction, not necessarily to fix things all at once. Politicians may preach the need for change but would not be wise to reform the system all at once. This incremental process of change is also a feature of complex adaptive systems.

The findings of the current research suggest ways that tobacco control advocates and public health officials may improve their effectiveness at the state level. During an interview, a public health advocate cautioned against a narrow public health approach to advocacy. “[State tobacco control funding] is a political event that is going on. We would like to believe information would be enough to make the decisions. I've actually had public health people tell me, ‘I don't want to get into the messy business of politics. I don't want to compromise my standards and my beliefs.’ You run into this a lot. It ends up being a naive barrier to getting the work done that you want done.”

The results of this research imply that the current strategy in public health of building a strong scientific, economic, and medical case for tobacco control is necessary but not sufficient to secure funding at the state government level. In the political environment, the factors that deserve public health attention include budget context, state priorities, interest group activity and the politicians who set policy for state government. The challenge in public health is to bring pressure to bear from outside government in new and creative ways and find partners inside government to champion tobacco control funding.

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## **APPENDIX A. Acronym Definitions**

ACS	American Cancer Association
AHA	American Heart Association
ALA	American Lung Association
ALF	American Legacy Foundation
AMA	American Medical Association
ASSIST	American Stop Smoking Intervention Study
CDC	Centers for Disease Control and Prevention
CPS	Current Population Survey
CRS	Congressional Research Service
CTFK	Campaign for Tobacco Free Kids
DHHS	Department of Health and Human Services
DoD	Department of Defense
FDA	Food and Drug Administration
FY	Fiscal Year
GAO	General Accounting Office
IMPACT	Initiatives to Mobilize for the Prevention and Control of Tobacco Use
IOM	Institute of Medicine, National Academy of Sciences
IRB	Institutional Review Board
MSA	Master Settlement Agreement
NAAG	National Association of Attorneys General
NACCHO	National Association of County and City Health Officials
NALBOH	National Association of Local Boards of Health
NASBO	National Association of State Budget Officers
NCI	National Cancer Institute
NCSL	National Conference of State Legislatures
NGA	National Governors Association
NIH	National Institutes of Health
RWJF	Robert Wood Johnson Foundation
SAMHSA	Substance Abuse and Mental Health Services Administration
USUHS	Uniformed Services University of the Health Sciences

## **APPENDIX B. Informed Consent Form**

### **RESEARCH CONSENT FORM**

#### **Explaining Variation in State Appropriations for Tobacco Control**

**INTRODUCTION:** You are being asked to take part in a study in which your participation is entirely voluntary. This form describes the possible risks and benefits of participation so that you can make an informed decision about whether to participate.

**DESCRIPTION OF THE RESEARCH AND ITS PURPOSE:** The Department of Preventive Medicine at the Uniformed Services University of the Health Sciences (USUHS) is carrying out this research study to find factors that were important in state decision-making for tobacco control appropriations. Joy Austin-Lane, a candidate for the Doctorate in Public Health degree, is directing this research project for USUHS. Through this study, she hopes to identify state level factors that explain state appropriations in a quantitative model.

To find explanatory factors, a review of the literature was conducted. In order to identify important factors that may not appear in the literature, she is conducting interviews with experts who have a broad understanding of the budget process in multiple states. The interview you are being asked to participate in is expected to last up to one hour and will be audiotaped. In addition, a modified "Delphi" technique will be used to prioritize the factors that these interviews yield. The "Delphi" technique was developed several decades ago as a method for obtaining the opinion of a group of experts without requiring those experts to meet. The interview information will be combined into a master list. You will be contacted again approximately four weeks after the interview by email and asked to provide additional judgments about which factors you consider most important in explaining the state appropriations process.

**POSSIBLE BENEFITS:** Some people enjoy talking about their knowledge and expertise. The results of this study will be shared with people who are interested in understanding how state policy decisions are made for tobacco control. You will be provided with an executive summary from the final report of this study.

**POSSIBLE RISKS:** There are no physical risks associated with taking part in this study.

**RIGHT TO WITHDRAW FROM THE STUDY:** You may choose not to answer certain questions. Further, you may stop taking part in this study at any time.

**PRIVACY AND CONFIDENTIALITY:** All of the information you provide for this study will be kept confidential. That means that it will only be shown to people who are directly involved in conducting this research. To maintain the confidentiality of your

answers, materials (transcripts, forms and tapes) will be coded with an ID number instead of your name. The coding sheet matching the names to ID numbers will be kept in a locked drawer that can only be accessed by the principal investigator. Any reports that come out of this study will not use your name nor any other identifying information.

The Institutional Review Board at USUHS and other federal agencies who protect people involved in research studies may need to see the study's records. Other than those groups, records from this study will remain private to the fullest extent of the law.

**QUESTIONS OR CONCERNS:** If you have questions about this research, you may contact Joy Austin-Lane, the person in charge of the study. Her email is [joyaustinline@aol.com](mailto:joyaustinline@aol.com) and her phone number is (301) 270-6524. You may leave a message at that number at any time.

If you have questions about your rights as a research subject, you may call Dr. Robert Bienvenu, the Director of Research Programs at USUHS (301) 295-3303. This contact is your representative and has no connection to the investigator conducting this study.

By signing this form I am agreeing that this study has been explained to me, that I understood that explanation, and that I am willing to take part in this research.

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Subject

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Date of signature

I certify that the research study has been explained to the above individual by me and that the individual understands the nature, purpose, and the possible risks and benefits associated with taking part in this research study. Any questions that were raised have been answered.

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Investigator

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Date of signature

## **APPENDIX C: Introductory Letter to Key Informants**

[Date]

Dear [First Name],

Thank you for agreeing to take time from your busy schedule to discuss determinants of state tobacco control appropriations with me. I will contact you at your office on [Appointment Date and Time] for the interview.

As I mentioned, this dissertation research is being conducted under the auspices of the Uniformed Services University of the Health Sciences in Bethesda, Maryland and is entitled "Explaining Variation in State Appropriations for Tobacco Control." The consent form is included for your review and signature. Please note that I would like to tape record our conversation. After all interviews are conducted, I will ask for your judgments about an extended list of factors. When the study is complete, I will send you a summary of the results.

As you know, several organizations are tracking the amounts states appropriate for tobacco control. This study will attempt to explain those amounts in a quantitative model. The definitions I am using are:

Tobacco control - educational, clinical, regulatory, economic and comprehensive methods for preventing exposure to tobacco (US Surgeon General's Report "Reducing Tobacco Use," 2000).

State appropriations for tobacco control - funds allocated by state legislatures for any of the above activities, which do not include research, health care or farm-related needs (CDC's State Highlights, 2001).

In order to collect the most complete list of potential determinants of state tobacco control appropriations, I am conducting in-depth interviews with national tobacco control professionals. To prepare for our discussion, please consider the factors that you feel influenced state appropriations for tobacco control in the states you know well. I will also ask for your ideas on available data and ways of measuring these influences.

I look forward to talking with you and learning from your experience.

Thanks again,

Joy Austin-Lane  
Doctoral Candidate in Public Health  
Department of Preventive Medicine

## APPENDIX D: Modified Delphi Rating Form

### Influences on State Tobacco Control Funding Decisions

**Instructions:**

Thinking about the state(s) you are familiar with and tobacco control appropriations in the last three years, please complete the following three tasks:

- First, go to Column 3 and rate the importance of each factor for explaining differences among state tobacco control allocations by placing an “x” under the number that corresponds to your rating on an 8 point scale (with 1=not at all important and 8=extremely important). Proceed down the column before beginning the next task. (If it seems that an important factor is missing, please record your thoughts in the comment section at the end of the table.)
- Second, go to Column 4 and choose the 10 factors that you think are most important in explaining differences among state tobacco control allocations and place an “x” in Column 4 beside each of 10 factors. Please be sure to select 10 factors.
- Third, go to Column 5 and rank order the 10 factors with an “x” by placing a number from 1 to 10 beside them (with 1 being the most important factor, 2 being the second most important factor, etc). Then proceed to the comment section at the end of the table.

FACTOR	DESCRIPTION	<u>Column 3</u>								<u>Column 4</u>	<u>Column 5</u>
		RATING SCALE								SELECT 10 IMPORTANT FACTORS (Place an x by 10 factors)	RANK ORDER 10 FACTORS (1=highest rank)
		Not Important	1	2	3	4	5	6	7	8	
<b>POLITICAL CULTURE</b>	Political traditions, norms, ideology, tendency to be liberal or conservative, to look long-term or short-term, beliefs about personal responsibility and role of government, how power and authority are allocated among legislators, committees, and party leadership, influence of interest groups generally	1	2	3	4	5	6	7	8		
<b>DEMOGRAPHICS</b>	Characteristics of state population that affect state budget, especially age distribution, population density/change, smoking rates, and tobacco burden of disease	1	2	3	4	5	6	7	8		
<b>STRATEGY &amp; MESSAGE</b>	Strategic tobacco control communication, message and timing; how and when case is made to various audiences, how well message is tailored to what audience cares about, whether the health priority is established early in the funding discussion	1	2	3	4	5	6	7	8		
<b>ATTORNEY GENERAL</b>	State attorney general who may have been involved in tobacco settlement and still be influential	1	2	3	4	5	6	7	8		
<b>CREDIBILITY OF LEADER</b>	Credibility, outcome of previous advice, expertise relevant to tobacco control such as healthcare	1	2	3	4	5	6	7	8		
		1	2	3	4	5	6	7	8		

FACTOR	DESCRIPTION	RATING SCALE								SELECT 10 IMPORTANT FACTORS (Place an x by 10 factors)	RANK ORDER 10 FACTORS (1=highest rank)
		Not Important	2	3	Somewhat Important	4	5	6	Very Important		
COALITION	Coalition or network of tobacco control advocates able to mobilize grassroots, community level support when needed; important to have consensus among advocates on funding priorities	1	2	3	4	5	6	7	8		
MEDIA	Media coverage of tobacco control advocates able to mobilize grassroots, community level support when needed; important to have consensus among advocates on funding priorities	1	2	3	4	5	6	7	8		
LEADERSHIP	Tobacco control leader support, championed the issue, who have consensus among important individuals at front on issue, whose persistence and relationships contribute to effective leadership	1	2	3	4	5	6	7	8		
PRIOR TOBACCO CONTROL	History of tobacco control activity in the state, prior government action, laws passed, programs funded	1	2	3	4	5	6	7	8		
BALLOT INITIATIVE	Tobacco control ballot initiative or referendum in the state	1	2	3	4	5	6	7	8		
TOBACCO PRODUCTION	Tobacco economy in the state, farming or manufacturing	1	2	3	4	5	6	7	8		
STATE PRIORITIES	Priority given to tobacco control or other issues, urgent or emerging needs	1	2	3	4	5	6	7	8		
PUBLIC OPINION	Public opinion in state, public support for tobacco control, priorities of the citizens or electorate	1	2	3	4	5	6	7	8		
MOTIVATION OF LEADER	Personal story or experience that inspires support for tobacco control, losing a loved one or having cancer	1	2	3	4	5	6	7	8		
GOVERNOR	Governor's position on tobacco control, role in influencing funding decisions	1	2	3	4	5	6	7	8		
BUDGET SITUATION	Budget situation in state, projected surplus or deficit, how much money is available in general	1	2	3	4	5	6	7	8		
TOBACCO INDUSTRY	Tobacco companies' influence in state, credibility, lobbying, campaign contributions, legal action; often behind the scenes influence	1	2	3	4	5	6	7	8		
OTHER OPPONENT OF TOBACCO CONTROL	Other group that opposes tobacco control in the state because of what its members stand to gain or lose, such as small business associations	1	2	3	4	5	6	7	8		
OTHER SUPPORTER OF TOBACCO CONTROL	Other group that supports tobacco control in the state because of what its members stand to gain or lose, such as labor unions; often behind the scenes influence	1	2	3	4	5	6	7	8		
ADVOCACY FOR TOBACCO CONTROL	Tobacco control advocacy outside the government, an individual or group that is active on the tobacco control issue, including researchers, voluntary health organizations (American Lung Association and others), public health or medical associations	1	2	3	4	5	6	7	8		
DEDICATED FUNDS	Funds for tobacco control and their reliability, settlement trust funds, dedicated excise taxes, others	1	2	3	4	5	6	7	8		
EVIDENCE OF EFFECTIVENESS	Results of prior tobacco control activity in the state, evidence of effectiveness, success	1	2	3	4	5	6	7	8		
HEALTH DEPT	Health department official's position on tobacco control, role in influencing funding decisions	1	2	3	4	5	6	7	8		
ANOTHER STATE	Tobacco control activity in another state that influences a state's decision to act	1	2	3	4	5	6	7	8		
		1	2	3	4	5	6	7	8		



FACTOR	DESCRIPTION	RATING SCALE								SELECT 10 IMPORTANT FACTORS (Place an x by 10 factors)	RANK ORDER 10 FACTORS (1=highest rank)
		Not Important		Somewhat Important		Very Important					
FEDERAL GOVT	Federal government's influence on state budget or legislature, role in preventing tobacco use, funding programs or regulating tobacco products	1	2	3	4	5	6	7	8		

**COMMENTS:**

If you feel that an important factor is missing, then please name and describe it below.

If you have comments about any aspect of this study, then please provide them below.

**Please respond at your earliest convenience, if possible by Tuesday, June 10, 2003.**

***Thank you very much for your participation in this study.***

## APPENDIX E: Quoted Passages from Transcripts

<b>FACTOR</b> <b>ID Number – Passage from Transcript Receiving Factor Code</b>
<p><b>BUDGET SITUATION</b></p> <p>104 - States are trying to maintain current services for health and human services and education when they are experiencing revenue shortfalls of up to 10% and 15%.</p> <p>106 - what has been a factor of less money going to tobacco control is primarily the dynamics of the state legislature, especially now given the budget crisis. Also, states are obligated, you know, constitutionally to balance their state budgets.</p> <p>106 - And so, because there's less revenue coming in, that means they have to cut services. In addition to that, because people are probably out of work, that means there are going to be more people demanding services. And so I think this reinforces the difficulty of trying to balance the state budget, which again is a conducive environment to cutting services or diverting monies from tobacco control programs like they did here in Massachusetts. And I think that as that relates to the fiscal situation, it's very important. But overall, it's the budget deficit. There's a major budget deficit and these dollars are in danger.</p> <p>108 - The big issue is budget deficits.</p> <p>112 - How indebted they are -- everybody is having shortfalls these days.</p> <p>113 - Because a number of the states are in a deficit situation, they're really trying to pull money from whatever sources they can.</p> <p>114 - The financial environment in the state is going to have a direct impact on appropriations. Here I think there are probably two sub areas. One is general financial environment. I think it's pretty safe to say that if a state has a lot of money, they are more likely to spend it on lots of things, and you know all ships rising. A state that has a surplus or a state that is able to spend money is going to benefit tobacco appropriations. The more specific financial situation probably is some measure of historical and current spending levels of tobacco control. That is my experience; states that have been spending money tend to continue to spend money in that area, because they have made a commitment to that.</p> <p>115 - The overall fiscal condition of the state is important.</p>
<p><b>DEDICATED STATE FUNDS FOR TOBACCO CONTROL</b></p> <p>103 - That was toward the end of the period that we studied, so looking ahead, forward-looking concern and that was one of the things we mentioned in our report that states had put in place certain restrictions on how the funds from the tobacco settlement were able to be used. A lot of states had set up special funds or created endowments for the use of tobacco control, for the tobacco settlement payments some of which were for tobacco control.</p> <p>104 - So the availability of these dollars has really allowed some states to put substantial amounts, and substantial amounts have to be qualified from state to state but what they feel are substantial amounts, in tobacco prevention that they would not have appropriated previously.</p> <p>104 - Some state legislators are concerned about the reliability of these dollars. They are concerned year to year how much the state can expect from the tobacco settlement dollars, because the amount fluctuates given consumption. What they were very concerned about is, they didn't want to start a number of programs at a certain level and then have the dollars fall away so that they couldn't support them at a level that they had in the past. It certainly makes them cautious about setting up programs in general, not just tobacco control programs.</p> <p>104 - From that standpoint some states look at these dollars as one-time funds. In other words, they look at them just for the here and now, as opposed to long range, though other states have looked long range. You have states like Louisiana that set endowments and trust funds because they saw these dollars as ways of funding tuition and scholarship programs and public health programs. In Colorado, they were using some 40% of their dollars to setup an endowment and placing 40% of the money in that endowment each year expecting the endowment to grow over a period of time to the extent that the endowment or the revenue earned from the endowment would fund these programs in the future. I think about one third of the states look long range. You got states like Nevada, Colorado, Ohio, Pennsylvania, Louisiana, that did this.</p> <p>113 - I think the other thing that has affected tobacco control appropriations is states are actually using -- well, a number of years ago states started to use cigarette excise taxes and they started to dedicate a portion of that tax for tobacco control purposes.</p> <p>115 - Related to that there are sources, potential sources of funds that are natural sources. For example, tobacco taxes, American Legacy funds, taxes, master settlement agreement funds, those are often ones that we can appropriate at a state level, and distribute to use in some way. But states often devote some of those to the general fund. Another is tobacco settlements. Outside the master settlement agreement, there are other settlements, as long as they are big enough. There are quite a few in California that have been very big settlements of lawsuits. If they are small, they go to local projects, sort of an RFA type of process; but if they are big, they tend to go into the general fund, and we lose them. They could be used for tobacco control and we are more likely to lose those in times of financial distress for the state.</p>
<p><b>DEMOGRAPHICS</b></p> <p>102 - So the socioeconomic, I don't think, plays out much, other than trying to present the case for burden of disease.</p> <p>104 - Under socioeconomic the demographics, like population and education, are probably the most dominant factor under that category.</p>

<p><b>FEDERAL GOVERNMENT ACTION</b></p> <p>102 – If you look at funding for health, funding for public health, funding for health care coverage, you will find that most of that is not coming from the state. Most of that comes from the federal government. So you do have a system that has depended heavily on federal funds for its health programs and for public health particularly.</p> <p>113 - There really isn't the federal push on tobacco control issues right now. The political environment is not one now that is promoting tobacco control regulation as a primary issue area.</p> <p>115 - [The impact of the federal government on state tobacco control funding is probably seen] when there are cutbacks in Medicaid support to the state. That probably does more to crush tobacco control than anything else. Just because the fiscal situation for the state then becomes even more difficult and you take money away from every source you can find.</p>
<p><b>GOVERNOR</b></p> <p>106 - Effective leadership from governor is important. One way of getting at effective leadership is, at least with appropriations, looking at the governor's budget. What happens in Massachusetts and California is in January of the fiscal year, they will introduce the budget and they set up priorities, what should be funded. You can follow that and get a sense of how effective the governor is in terms of being able to maintain his priorities.</p> <p>106 - The governor's initial budget sets up the document that the other legislative bodies work from. And the line item vetoes, of course, are very, very important, especially as it pertains to tobacco control.</p> <p>107 - There are other states where cuts have been made administratively, where the governor says, "we are not going to approve anything strong."</p> <p>108 - Some states have it set up where if there is a deficit, the governor gets extraordinary powers to bring it back to zero. So budget cuts don't always go through the state legislature.</p> <p>110 - If the governor is or is not invested in tobacco prevention and control, that certainly drives where the state's allocations are going.</p> <p>113 - While the appropriations are actually made by the legislators, the governor's got the budget and the agenda and things like that.</p>
<p><b>HEALTH DEPARTMENT OFFICIAL (STATE OR LOCAL)</b></p> <p>102 - The health officials are a roadblock rather than a help, most of the time. When you find a state health official that will champion this, you're a lot further down the road than most. What role they do or don't play, I think it's important to understand.</p> <p>103 - It would be hard to imagine a department of health that would not be interested in [tobacco control], unless they just had such tight constraints and some other health initiative that they were working on.</p> <p>103 - It's related to the political culture also because there are states like Virginia where they don't think that it's politically feasible to do something. These people might not be stepping up to give testimony or make statements about it.</p> <p>107 - If you have a health director who believes in the program, and is willing to administer it aggressively and effectively, I think that's important.</p> <p>114 - The head of the Health Department actually stated that tobacco control was the number one priority for the State Department of Health.</p> <p>115 - There has got to be active leadership at the professional level, so that you have leadership in the Department of Health Services or Department of Education or somewhere probably at a government level. I think coupled with that, you need a strong grass roots level network of organizations that can organize with local elected officials at the local level and the state level, and create a voice for tobacco control, and that together those two groups can form a partnership or a handshake that will move policy forward. Then between those two, they can be very strategic in terms of thinking about where to insert the discussion into the state legislature, who they can work with and how they can get legislation introduced and passed.</p>
<p><b>MEDIA</b></p> <p>106 - There has been some work looking at some of the media coverage, within a state, what is the media coverage of state politics? Research and political scientists have found that it's very, very poor. A lot of television stations and newspapers have closed their news bureaus in state capitals.</p> <p>107 – If you have someone out there making it an issue and putting it in front of the public, then the media will follow it as news. But I've never seen any place where the media has taken the lead. In fact, they really shouldn't. I mean if they are there as a news organization they shouldn't be making stuff up. And in fact, one of the other mistakes I think a lot of the health advocates make is sort of wanting the press to do the advocates' work. Where they just say, why won't the media get out there and talk about how outrageous this is, rather than the health advocates wanting to do it. And the tobacco people are very good at working the media.</p> <p>113 - It would be interesting to look at whether there is media coverage around the time of the appropriations hearings because one of the things that the literature has shown is there's often a relationship between media agenda-setting and policymaking.</p>

## **POLITICAL CULTURE**

- 102 - Most legislators don't like to be the first. There are exceptions to that, but most of them want to play it fairly safe, make the right decision, and they're much more comfortable if others are doing the same thing they're doing.
- 106 - It really goes to how power and authority is allocated in the state and state government.
- 108 - Now if you take those 40 states that all have deficits -- why some have cuts, some have stayed the same and some have even increased their tobacco prevention budget -- there are a lot of factors. I think some states are simply a little more forward-looking, and it might have something to do with their political structure in terms of how many times they can be re-elected. In order to reap the benefits of tobacco control, it does save money in the long run for healthcare. But to get those benefits you have to look 10, 15 years in the future in most cases. It has an immediate health effect on let's say heart disease. But to really get the state to save money by investing, you have to look not in one or two terms, but in a generation. A lot of politicians just aren't geared up for that. So some states seem to be more forward-looking over time anyway to see that this is an investment.
- 108 - I think sometimes party affiliation can have something to do with it, although in general tobacco control is not a partisan issue. Republicans are a little more leery of spending money on such programs, because they, a lot of them have a smaller is better approach to government. This is something they don't often see and at least less often than Democrats, as something the states should be getting into, and this is a non-profit sector or a libertarian issue where the states shouldn't be trying to tell people what to do with their lives even when it comes to health.
- 110 - I think it depends on [legislators'] philosophical view about corporate enterprise and business and the rights that industry has to sell products. I think it depends on their view and understanding of how tobacco costs their state budget.
- 114 - It's certainly true for appropriations that politics plays a huge role and I don't mean traditional sort of Republican/Democratic politics. I mean the push and pull of interests in this stage.
- 114 - There is some traditional party line politics that happens. Democrats tend to be more and this is a big generalization, but in the states that we've looked at, Democrats tend to be more anti-tobacco, pro-public health, and Republicans tend to be more pro-business, pro-tobacco industry. But each state is different and each legislature is different obviously.
- 114 - I think for something like appropriations, the political dimension is just huge. It is really important to understand. Missouri has a pretty miserable record in terms of tobacco control. One reason is essentially the low political profile of tobacco control advocates there, but there is also sort of a political personality. There is truth to the saying, "Missouri is the Show Me State," and Missouri tends not to take up progressive causes. So it's not just individual heroes and villains, but also there is a political culture that says, we just don't want to spend a lot of money on these sorts of things. All of this fits into what I see as a political dimension.
- 114 - Now in terms of other geographic or cultural differences, I think of it as the coastal urban states. These states tend to be more democratic. There is much more history of government involvement in the decisions of how state monies are spent, meaning that complex state programs get more support from those states.
- 114 - Some characteristics of the appropriations process are really going to vary from state to state. I know that in some states it is all about the committees. Whereas in other states, it's all about the floor debates.

## **PRIOR TCP POLICY**

- 104 - In some states, especially when you've seen a large bolus of money, the community programs were not able to spend all that money in one year. The infrastructure wasn't there and available, so some of the \$52 million that was appropriated for fiscal year 2002 may still be available for expenditure in 2003. That may be one of the reasons that the appropriation went down. I know that was the case in Indiana a couple years ago. So that's why tracking these things becomes somewhat complex in trying to look at it from year to year to explain the ups and downs.
- 105 - The second thing, which is going to be closely tied to current state appropriations, is prior commitments to tobacco control. But I really don't see that necessarily as an appropriate measure for a predictive model of state appropriations because it's in essence the dependent variable but a few years before.

## **PRIOR TCP POLICY RESULTS**

- 102- State people have gotten empowered with a lot of good data now, which allows us to go in and make a convincing case that these programs are necessary, that they work. But before, I think it was always kind of trying to convince them to trust us. Now we actually have some data that says it will work.
- 103 - They were one of the first states to have those tobacco control programs that were successful, so I think that gives them more of a momentum and there are a few other states like that.
- 103 - [It would be influential] if states had successful programs in place that could show a result, that have done evaluations, that could show a decline in smoking rates over time. Certainly that would be influential.
- 103 - In California they had that program in place for so many years that they did show a declining health rate. So that would lead to fewer healthcare expenditures. Those are really long term. So if a program were successful, it would be an area to put additional funds. The thing about balancing the budget is that it is usually more immediate than that.
- 110 - I would say that when more research and evidence-based cessation policies are coming out, that definitely gets the attention of policy-makers and I believe it is a variable they take into consideration when deciding what they are going to do. Are they going to be adding into their Medicaid budget the provisions for tobacco cessation programs for pregnant women and children when there is significant scientific evidence to support that as a successful strategy?
- 115 - We don't have a lot of hard data on what works and what doesn't work, and that has been very very tough to convince legislators about why they should spend money on tobacco. There have been some efforts from a large state oversight committee, TERO, to calculate what does one dollar spent on tobacco control do in

<p>terms of state health department costs. And I believe that kind of research is another potentially influential factor, that isn't really there for us in a very strong way. We are trying to produce that as we scramble for state support.</p>
<p><b>PUBLIC OPINION</b></p> <p>102 – [With deaths from tobacco use,] it isn't a situation where there is public concern, public panic. There isn't a threat to my child, to my health because it's seen as an individual behavior.</p> <p>104 – I would say [that public opinion is affecting appropriations], especially when you look at the fact that public support is for not increasing taxes and for maintaining services.</p> <p>105 – [Public support] for tobacco control is an intermediate outcome that is closely tied to appropriations.</p> <p>107 - Public opinion is helpful if it is properly mobilized. I think the real question is do you have someone out there mobilizing that public opinion, shaping it, and focusing it?</p> <p>110 - The ballot initiative that went through in Montana is a clear indication that there is voter support out there for using these funds for prevention.</p>
<p><b>STATE ATTORNEY GENERAL</b></p> <p>108 – It can be important whether or not the attorney general was involved in the master settlement agreement and is still involved in the high levels of state government. Then it seems more likely that tobacco spending is going to be preserved. A lot of them had to buy into this whole thing and really did feel that this should be used in healthcare, not necessarily all in tobacco control, but that it should be used to reimburse the states for healthcare and that they should try to prevent more damage in the future with the money. That's not across the board. Some of the AGs that were around in 1998 simply jumped on the bandwagon at the last minute to get their states' money, and so they really don't have anything going into it. But the ones that were at the forefront, the ones that were initially suing the tobacco industry, if they are still around, they are a strong voice for how to use that money.</p>
<p><b>STATE PRIORITIES</b></p> <p>102 – Tobacco control is still considered a low to moderate priority. It's not a high priority, like medical coverage, education, research, and cancer prevention that I would say are all moderate to high priorities. I'd say tobacco is in there at moderate to low priority. In most states, I would say it's in the lowest tier. In some states, it reaches moderate. You can keep a program going at even low or moderate if you have a champion for it and if people keep pressure on it. But when that climate changes, we either lose that political favor or the champion has to say, look, things are so bad right now, economically or whatever, that we've got to change course here and we've got to reshuffle this.</p> <p>105 - For a place like Florida, which is growing at an astonishing rate with lots of immigration and other issues, they have a really dynamic situation that puts a lot of pressure on budget in general. So, their emerging needs seem to be really important.</p> <p>107 - I think it is a question of priorities and how hard people are willing to fight.</p> <p>108 - Others see it as simply a frill. It would be nice if kids smoked less, but it's more important that we build roads or keep the bridges that we have from falling over.</p> <p>113 - What you're finding is they're not making any appropriations for tobacco control but, at the same time, they're not appropriating for any health care issues. It tells you that tobacco control never stood a chance to begin with because health care is not important to that legislature.</p> <p>114 - Where does tobacco control fall in a states' priority list? Is tobacco control part of the state debate?</p>
<p><b>TCP ACTIVITY IN ANOTHER STATE</b></p> <p>102 - If you can also show that use rates and use patterns are somehow unique to your state, other states are doing it better or doing it less, then that's also a convincing argument.</p> <p>110 – There is often a healthy competition between neighboring states when it comes to establishing various policies.</p>
<p><b>TCP ADVOCACY</b></p> <p>107 - The presence of some sort of public health infrastructure that can act independently of the government and put pressure on the government is important.</p> <p>107 - My view of these things is that the tobacco industry is trying to stop all of this. And the question is how aggressive are the public health interests in forcing the thing onto the public agenda and keeping it there long enough to prevail. So I think those things are very important, and the tobacco industry's influence is also very important.</p> <p>113 - Interest group activity in general is important. There are two sides: the pro-tobacco control and the pro-tobacco. The pro-tobacco control would include the major health groups: ALA; AHA; ACS; Campaign for Tobacco-Free Kids. They're all promoting agendas that would facilitate or promote increased appropriations for tobacco control programs. A number of those organizations have regionally and locally based affiliates, and most of the push that is happening at the state and local levels is coming from those regional affiliates</p>
<p><b>TCP BALLOT INITIATIVE</b></p> <p>103 - Some states actually put this up for a vote, so they had ballot initiatives on how their dollars should be invested. I think that is important because that is related to how the states made the decision.</p> <p>106 - Generally legislators are very antagonistic to these initiatives that have been successfully passed by the voters. They see themselves as having the key role in decision-making and once these initiatives are enacted, they're seen as usurping their authority.</p> <p>114 - Legislatures are filled with people who don't want to threaten their own jobs. They tend to dodge tax increases and so more and more states are taking up referenda. For example, most states when dealing with excise tax increases on cigarettes have done it by putting it up for a vote.</p> <p>115 - It helps a lot in California that there is an initiative process, whereby people can get petitions signed and place an initiative on the state ballot, and have the voters vote it in as law. That does not happen in every state.</p>

<p><b>TCP COALITION</b></p> <p>112 - I guess the effectiveness of coalitions at a state level could influence how much gets done. You need people at the grass roots level who are going to raise the issue and shame people.</p> <p>115 – It is strong, community-based network of coalitions; a coalition of coalitions. I think it's strong representation at the local level, that can apply pressure at the local level.</p>
<p><b>TCP LEADERSHIP</b></p> <p>102 - Getting someone powerful enough in the legislative process, that will take up this interest and believe in it, will become the champion through the legislative process, keep after it, is really important. They need someone to actually move it through the process, who can rally the troops around it, get people excited about it. Eventually, you've got to go to finance, health committees, so somebody on that committee is obviously really key, or it's got to be someone that can influence that committee. So I think the inside-outside strategy is important. There has got to be somebody inside the political structure that is willing to champion this. And then there's got to be the outside factions, somebody that's got to keep pushing this all the way through, that's bird-dogging it, watching it. So it's the inside-outside kind of scenario that has got to somehow click.</p> <p>104 - They certainly need the right connections. They don't have to be on a health committee, but if they're not on a health committee then they certainly have to have the ear of the leadership so that they can be effective in their advocacy.</p> <p>107 - The presence of a credible champion [is the most important factor].</p> <p>114 - We've discovered the importance of a charismatic leader who defines tobacco control as an important issue. This seems to be very important in particular states. When you have people with political presence saying that tobacco control is important, it shifts everything in a state. You see that then appropriations discussions get framed very differently. Now obviously that sort of thing doesn't happen in most states, but that is sort of the point. The point is that unless somebody steps up to the plate, there are so many competing health interests let alone other interests that cost money that you really need somebody to define the issue.</p> <p>114 - It was also a lot of leadership from the national voluntary groups who had organizational branches at the state, so that would be another component of leadership. The voluntary thing, American Cancer, American Lung.</p>
<p><b>TCP LEADER CREDIBILITY</b></p> <p>102 - We promise things we can't deliver, and we also promise to do it on money that can't achieve the outcome. So now you've got an environment in which legislators are not convinced that what they can do will make a difference, and then when you come back and ask for millions and millions to do it, they really think you're wacko.</p>
<p><b>TCP LEADER MOTIVATION</b></p> <p>102 - I am amazed and have been amazed by the personal side that a legislator, a leader, a communicator brings to this. It's not that 400,000 people die a year and it costs the state \$11 billion. There is some personal aspect to it that they bring to this issue. I lost a grandparent to this; my mother smokes and to this day is trying to quit. She's got emphysema and still smokes.</p> <p>110 - I think it depends on how personally impacted by tobacco they may be in their own life, just on a personal level.</p>
<p><b>TCP LEGISLATOR</b></p> <p>113 - There may be a particular legislator on an appropriations committee who is willing to push the cause for tobacco control, either from personal experience or constituents' personal experience, or it may be historically based with that legislator having always been an advocate for tobacco control activities.</p>
<p><b>TCP STRATEGY &amp; MESSAGE</b></p> <p>102 - If you look at the whole strategy around tobacco control, so much of it is geared at youth prevention. Why? Well, because we say they need the protection. They may not be as well informed. They may not be as smart at making decisions. The approach is you are trying to protect and who you worry about. Well, you worry about the uninitiated, the uninformed.</p> <p>104 - I think if there is any kind of generality across the strategies it's that states are trying to use these dollars for healthcare purposes, be that tobacco prevention or Medicaid, maternal and child health, community health centers, treatment for mental illness, or drug addiction. So, I would say setting the agenda for healthcare.</p> <p>110 - I think it is also driven by whether or not cohesive prevention messages are received by the executive and legislative branches regarding tobacco prevention and control.</p>
<p><b>TCP SUPPORTER</b></p> <p>102 - There are some other groups that come to bear on this, come into play on it, that support it for whatever reason that you didn't anticipate. So you get these folks that will rally to this issue because they have some other advantage to do so. This group has more clout, more power inside, and is cutting deals. All of a sudden, there was a whole new formula on how the money would be distributed within the state to counties. No one knew where it came from, how this, all of a sudden, ended up in the legislation. It was these other groups working behind the scenes, the health-medical interest folks and the union folks coming up with a way to cut the pie. Tobacco folks had been just arguing for the money. They were cutting deals on how the money would be utilized and split up. They're the late arrivals, but they're powerful houseguests when they arrive.</p>

### **TOBACCO ECONOMY**

- 103 – It is more about the farming and the production of tobacco, which has been a big part of the culture of the past. It is about the culture of the people and how people made money, but also [the stability of the economy in big tobacco producing states.]
- 105 - Well, tobacco [economy] is going to be a huge predictor. It doesn't really vary much over time and a state is either producing or not. I don't think that the level of tobacco farming, manufacturing is really important. It's a dichotomous thing to me; chasing after the volume of farming or manufacturing is not going to give you much more explanatory power.
- 106 - How important tobacco as an industry is to a state's economic health, I think, is real important.
- 112 - Also, tobacco farming, tobacco production. Obviously, those are huge issues. You don't want to hurt that constituency.
- 114 - The big one that I think everybody will say is, there really is a difference between tobacco growing states and non-tobacco growing states for a lot of obvious reasons now. When we look at it, it actually turns out if you look at states that really grow tobacco, it includes certain states that you wouldn't think of like Massachusetts and Wisconsin. They grow relatively small amounts of tobacco and depending on how you wanted to define it there really is a group of primarily southern and southeastern states where a state gets a substantial part of its GDP from tobacco related activities.

### **TOBACCO INDUSTRY POLITICAL ACTIVITY**

- 102 - It's now not really too kosher to be too close to the tobacco industry, at least in public.
- 106 – [There] is an effort by the industry to really undertake very ambitious, aggressive lobbying in the state legislatures, such that they can prevent strong tobacco control legislation from being enacted, but also working on the budget side to encourage legislators to divert these funds.
- 107 - The tobacco culture is obviously important. In the tobacco growing states, the industry has a lot more direct political influence, although the tobacco industry is perfectly capable of expressing political influence everywhere [even in states that] don't grow any tobacco.
- 108 - In some states, the tobacco industry is very very active at the state level in their lobbying efforts, and obviously the states where they grow it and manufacture it have the most influence.
- 108 - It is difficult for them to come in and say you shouldn't spend money to stop kids from smoking. But what they can come in and say is, "Here is where you should be spending your money, and it is everything but that." They can get involved when they are getting into the budgetary fights and they are getting the details of the budget, of budget line. The lobbyists will be in there, and they will have their own idea of where that money is most properly spent. It will never be on tobacco control.
- 113 - What they found with the tobacco industry people on the legislative side in general was they really focused their efforts at the state level. So any time that state laws were being proposed to affect -- that would ultimately affect the industry and its business, they really put their dollars behind that. I imagine the same is going to hold true with the appropriations process, where Philip Morris, for example, has a lot of other companies as part of their broader parent organization itself. They're probably promoting appropriations for other non-tobacco programs.
- 114 - The tobacco industry has a presence in the big tobacco growing states for example. They also tend to have a bigger presence in the bigger states. But they work both sort of above the radar and below the radar.
- 114 - Other things politically, it really does look like political contributions by the tobacco industry have an effect. That is, people who tend to vote pro-tobacco are the ones who are receiving more money from the tobacco industry. It doesn't surprise any of us even though politicians and the industry still try to say these contributions have nothing to do with influencing votes.
- 115 - The amounts that [tobacco companies] donate to legislators would also be influential. I think part of the difficulty [in measuring that] is knowing who all the front groups are.

### **TOBACCO INDUSTRY SUPPORTER**

- 106 – [When you have] an association that represents thousands of restaurant owners and they're lobbying on behalf of the industry, then this resonates with legislators because they feel like this is adversely affecting these businesses in my district that I represent, that I could be putting people out of work. And so, associations or allies and partners are really important.
- 107 - Then you have association partners, what I call third parties, who are very important.
- 114 - They work in particular through a lot of affiliated groups. So for example, when there are ballot initiatives that come up, often you don't have RJR fighting against it, but you have the Missouri Small Business Retail Association fighting it. When you look at it, you realize that the lobbyists are exactly the same people.

**TABLE 1: CDC Best Practice Components and Funding Formulas for Comprehensive State Tobacco Control Programs**

Best Practice Components	Funding Formulas For Successful State Implementation
Community programs that engage youth and local officials	Base amount of \$850,000 to \$1,200,000 for statewide training and infrastructure + \$0.70 to \$2.00 per capita
Chronic disease prevention programs	\$2.8 to \$4.1 million per year
School-based programs	Base amount of \$500,000 to \$750,000 for statewide training and infrastructure + \$4 to \$6 per student (K-12)
Enforcement of youth access and clean indoor air laws	Base amount of \$150,000 to \$300,000 for youth access and clean indoor air enforcement + \$0.43 to \$0.80 per capita
Statewide programs that assist local programs	\$0.40 to \$1 per capita
Anti-tobacco advertising, counter-marketing	\$1 to \$3 per capita
Cessation programs	\$1 per adult for screening + \$2 per smoker for brief counseling at a minimum; ideally \$13.75 per smoker (50% of program cost for 10% of smokers) + \$27.50 per smoker (approximately 25% of smokers covered by state financed programs)
Surveillance and evaluation	10% of what is spent on the above components (see subtotal)
Administration and management	5% of what is spent on the above components

Source: CDC, 1999



**TABLE 2: Selected Measures by State**

State	2000 State Population (millions)	Average Adult Smoking Rate 1996-2000 (%)	2000 Tobacco Excise Tax (\$ per pack)	FY02 State Tobacco Control Funding (\$ per capita)	Percent of FY02 Settlement Payment	Percent of CDC Best Practice Low Guideline
Alabama	4.4	24.1	0.17	0.50	1.9	8.3
Alaska	0.6	26.5	1.00	7.82	20.2	60.6
Arizona	5.1	21.1	0.58	6.29	30.1	116.0
Arkansas	2.7	26.5	0.32	5.28	24.0	78.8
California	33.9	18.4	0.87	4.07	14.9	83.5
Colorado	4.3	22.2	0.20	3.47	15.3	60.8
Connecticut	3.4	21.5	0.50	0.76	1.9	12.1
Delaware	0.8	24.7	0.24	7.96	21.7	72.3
Florida	16.0	22.3	0.34	1.91	5.2	39.1
Georgia	8.2	22.7	0.12	2.92	13.7	56.2
Hawaii	1.2	19.7	1.00	19.31	53.5	217.0
Idaho	1.3	21.1	0.28	2.06	10.3	24.2
Illinois	12.4	23.5	0.58	4.09	15.4	78.2
Indiana	6.1	27.0	0.16	1.10	4.6	19.2
Iowa	2.9	23.4	0.36	3.80	18.0	57.5
Kansas	2.7	21.6	0.24	1.03	4.7	15.4
Kentucky	4.0	30.7	0.03	1.22	3.8	19.6
Louisiana	4.5	24.7	0.24	0.52	1.5	8.6
Maine	1.3	23.5	0.74	11.00	25.7	125.2
Maryland	5.3	21.0	0.66	6.32	20.8	110.5
Massachusetts	6.3	20.8	0.76	5.85	12.7	105.5
Michigan	9.9	25.7	0.75	0.64	2.0	11.6
Minnesota	4.9	19.9	0.48	6.14	8.2	105.4
Mississippi	2.8	23.4	0.18	7.94	10.8	120.3
Missouri	5.6	27.4	0.17	4.21	14.6	71.8
Montana	0.9	20.6	0.18	2.11	6.3	20.4
Nebraska	1.7	22.2	0.34	5.05	20.4	64.9
Nevada	2.0	29.4	0.35	2.53	11.6	37.5
New Hampshire	1.2	24.2	0.52	3.57	9.3	40.5
New Jersey	8.4	21.0	0.80	3.86	11.8	72.0
New Mexico	1.8	22.7	0.21	3.81	16.4	50.6
New York	19.0	22.8	1.11	2.45	5.0	48.5
North Carolina	8.0	25.5	0.05	0.48	2.3	9.0
North Dakota	0.6	22.2	0.44	5.27	13.0	41.5
Ohio	11.4	26.7	0.24	10.71	34.0	196.9
Oklahoma	3.5	24.2	0.23	1.10	5.2	17.4
Oregon	3.4	21.5	0.68	3.81	15.7	61.7
Pennsylvania	12.3	24.0	0.31	3.51	10.3	65.8
Rhode Island	1.0	23.1	0.71	4.29	8.8	45.5
South Carolina	4.0	24.2	0.07	0.81	3.9	13.6
South Dakota	0.8	23.4	0.33	5.95	18.1	51.7
Tennessee	5.7	26.3	0.13	0.33	1.1	5.8
Texas	20.9	22.4	0.41	0.80	1.7	16.2
Utah	2.2	14.1	0.52	0.77	5.4	11.3
Vermont	0.6	22.6	0.44	14.65	29.9	112.9
Virginia	7.1	23.0	0.03	2.39	11.7	43.6
Washington	5.9	22.4	0.83	3.50	14.2	61.9
West Virginia	1.8	27.0	0.17	4.42	12.7	56.4
Wisconsin	5.4	23.9	0.59	1.39	5.0	24.0
Wyoming	0.5	23.8	0.12	4.20	11.5	28.1
US Average	5.62	23.33	0.41	4.16	12.81	57.51

Sources: US Census Bureau, 2000; CDC, 2002; Raw data for dependent variable in **bold** type

**TABLE 3: Possible Determinants of State Tobacco Control Funding from Literature**

<i>State-Level Factors</i>	<i>Measure or Definition</i>
<b>SOCIOECONOMIC</b>	
Demographics	Age, education and geographic distributions (population density and growth, region, % with college degree, high school degree, % over 65, % under 18)
Affluence	Income and economic prosperity (median family income, unemployment rate, state expenditures per capita)
Tobacco culture	Tobacco production, economic and social culture in tobacco states
<b>POLITICAL</b>	
Elected Officials	Political party control of houses (both Republican, both Democrat, split), political party of governor, power of governor, proportion of women legislators
Political culture	Elazar's political culture index, Lieske's regional subculture index, Hero's social diversity index, Walker's index of historical innovation, Chriqui's index of tobacco control innovation, tobacco excise tax
Legislative champion	Effective leadership by an individual inside legislature, early agenda setting in appropriations debate, coalition building, support on committee
Tobacco control advocacy	Influential person outside legislature (scientist, doctor, former smoker, other), effective anti-tobacco coalition, collaboration among advocates competing for same money, local ordinances, advocates' participation in appropriations process
Tobacco industry influence	Lobbying budget, campaign contributions, association partners
Public opinion	Public support for tobacco control, opinion surveys, ballot initiatives
Media	Print, Radio, or Television coverage of tobacco issues
<b>BUDGET</b>	
Fiscal situation	Discretionary budget caps, deficit or surplus at mid year
Budget officials' position	State and legislative budget officials' advice, credibility
Unmet needs	Infrastructure, health care, education, other priorities
<b>HEALTH</b>	
Burden of disease	Direct medical costs related to smoking (total and Medicaid), smoker quit ratio, smoking prevalence, lung cancer deaths, smoking related deaths
Health officials' position	State and local health officials' advice, credibility
Infrastructure	Tobacco control staff, equipment and resources

**TABLE 4: Possible Determinants of State Tobacco Control Funding from Interviews**

FACTOR	DESCRIPTION
<b>BUDGET CONTEXT</b>	
<b>Budget Situation</b>	Budget situation, projected surplus or deficit, how much money is available
<b>Dedicated TCP Funds</b>	Money earmarked for tobacco control and its reliability, settlement trust funds, dedicated excise taxes, or other resources
<b>GOVERNMENT CONTEXT</b>	
<b>Political Culture</b>	Political traditions, norms, ideology, tendency to be liberal or conservative, to look long-term or short-term, beliefs about personal responsibility and role of government, how power and authority are allocated
<b>State Priorities</b>	Priority given to tobacco control or other issues, unmet or emerging needs
<b>Governor</b>	Governor's position on tobacco control, role in influencing funding decisions
<b>Health Dept. Official</b>	Health department officials' position on tobacco control, influence on budget
<b>TCP Legislator</b>	State legislator who leads or champions tobacco control inside the legislature
<b>Attorney General</b>	State attorney general involved in tobacco settlement and still influential
<b>TCP in Another State</b>	Tobacco control activity in another state that influences a state's decision
<b>Federal Government</b>	Federal government activity or TCP policy that influences state budget or policy
<b>TOBACCO CONTROL AND PREVENTION (TCP) ADVOCACY CONTEXT</b>	
<b>TCP Advocacy</b>	Tobacco control advocates from research institutions, voluntary health organizations (i.e., American Lung Association), and other associations
<b>TCP Coalition</b>	Coalition or network of tobacco control advocates able to mobilize grassroots, community level support when needed
<b>TCP Leadership</b>	Tobacco control leadership, the person who defines tobacco control as an important issue, who takes a public stand, whose persistence and relationships contribute to effective leadership
<b>TCP Credibility</b>	Leader's credibility, reputation, relevant expertise, accuracy of previous claims
<b>TCP Motivation</b>	Leader's personal reasons for supporting tobacco control (i.e. losing a loved one)
<b>TCP Strategy &amp; Message</b>	Strategic tobacco control communication, message and timing; how well message is tailored to what audience cares about
<b>Other TCP Supporter</b>	Other group supporting tobacco control because of what its members stand to gain or lose, such as labor unions
<b>PRIOR TCP POLICY CONTEXT</b>	
<b>Prior TCP Policy</b>	History of tobacco control government activity, laws passed, programs funded
<b>Prior TCP Results</b>	Results of prior tobacco control activity in the state, evidence of effectiveness
<b>TCP Ballot Initiative</b>	Ballot initiative or referendum on tobacco control in the state
<b>TOBACCO INDUSTRY CONTEXT</b>	
<b>Tobacco Economy</b>	Tobacco economy in the state, from farming, manufacturing or other
<b>Tobacco Industry Political Activity</b>	Tobacco companies' political activity in state, including lobbying, campaign contributions, and legal action
<b>Other TCP Opponent</b>	Other group opposing tobacco control in the state because of what its members stand to gain or lose, such as small business associations
<b>LARGER SOCIAL CONTEXT</b>	
<b>Public Opinion</b>	Public opinion, public support for tobacco control, priorities of the citizens
<b>Media</b>	Media coverage, media campaigns or media correspondent
<b>State Demographics</b>	Characteristics of state population, especially age distribution, population density, smoking rates, and tobacco burden of disease

**TABLE 5: Description of Study 1 Participants**

<b>STUDY 1</b>	
Number of key informants interviewed	14 (plus one pilot participant)
Number of interviews transcribed and coded	12
<b><u>Employer</u></b>	<b><u>N</u></b>
Research Institutions	7
Government Agencies	2
National Associations	3
Health Advocacy Organizations	2
<b><u>Primary area of expertise</u></b>	<b><u>N (years in field)</u></b>
State budget	1 (13)
State politics	3 (1, 6, 11)
State policy	4 (8, 12, 16, 20)
State health	2 (10, 25)
All of the above	4 (2, 7, 12, 24)
Number of Familiar States	<b>Range (2 to 50) Mean=20.9 Std Dev=21</b>
<b><u>States mentioned in top 10 (23 total)</u></b>	<b><u>State abbreviation (frequency*)</u></b>
New England	MA (8), VT (2)
Mid Atlantic	DE (1), MD (1), NJ (1), NY (2)
Great Lakes	IL (1), IN (3), MI (1), OH (1), WI (1)
Plains	MN (1), MO (1), NE (1)
Southeast	FL (6), GA (1), TN (1)
Southwest	AZ (4), TX (1)
Rocky Mountain	CO (2)
Far West	CA (8), OR (2), WA (2)
Number of respondents in the modified Delphi process	12 of 14; response rate 85%

\*Frequency is the number of times a respondent named state as very familiar (max of 14)

**TABLE 6: Measures of Importance from the Modified Delphi Process**

FACTOR	SUM RANKING	AVG RATING	SELECTED FOR TOP 10	COUNT
	Cutoff: Above 30	Cutoff: Above 5	Cutoff: Above 50%	Freq. Above Cutoff
<b>BUDGET SITUATION</b>	<b>87</b>	<b>7.17</b>	<b>91.7</b>	<b>3</b>
<b>TOBACCO POLITICAL ACTIVITY</b>	<b>49</b>	<b>6.67</b>	<b>75.0</b>	<b>3</b>
<b>TOBACCO ECONOMIC ACTIVITY</b>	<b>54</b>	<b>6.92</b>	<b>66.7</b>	<b>3</b>
<b>GOVERNOR</b>	<b>48</b>	<b>6.58</b>	<b>66.7</b>	<b>3</b>
<b>STATE PRIORITIES</b>	<b>43</b>	<b>6.58</b>	<b>66.7</b>	<b>3</b>
<b>TCP LEADERSHIP*</b>	<b>52</b>	<b>6.25</b>	<b>66.7</b>	<b>3</b>
<b>TCP ADVOCACY</b>	<b>32</b>	<b>6.42</b>	<b>58.3</b>	<b>3</b>
<b>DEDICATED TCP FUNDS</b>	<b>34</b>	<b>6.67</b>	<b>50.0</b>	<b>3</b>
<b>TCP COALITION*</b>	<b>31</b>	<b>6.25</b>	<b>50.0</b>	<b>3</b>
<b>TCP LEGISLATOR</b>	<b>31</b>	<b>6.17</b>	<b>50.0</b>	<b>3</b>
<b>PUBLIC OPINION</b>	<b>33</b>	<b>5.92</b>	<b>50.0</b>	<b>3</b>
MEDIA	20	5.75	50.0	2
POLITICAL CULTURE	31	5.83	41.7	2
TCP LEADER CREDIBILITY*	22	5.67	41.7	2
TCP STRATEGY & MESSAGE*	17	5.67	41.7	2
PRIOR TCP POLICY	18	5.92	33.3	2
TCP BALLOT INITIATIVE	35	5.67	33.3	2
OTHER TCP SUPPORTER*	7	5.42	16.7	1
HEALTH DEPT OFFICIAL	1	5.50	8.3	1
OTHER TCP OPPONENT#	10	4.83	16.7	0
PRIOR TCP POLICY RESULTS	2	4.58	16.7	0
STATE DEMOGRAPHICS~	3	3.67	8.3	0
ATTORNEY GENERAL	0	4.33	0	0
TCP LEADER MOTIVATION*	0	4.08	0	0
TCP IN ANOTHER STATE	0	3.42	0	0
FEDERAL GOVT	0	3.00	0	0

Note: Factors sorted by 4<sup>th</sup>, 3<sup>rd</sup>, and then 2<sup>nd</sup> columns

TCP=Tobacco Control and Prevention

Major factors in **bold** type were included in Figure 9

\* Six factors subsumed by Tobacco Control Advocacy in Figure 8

# One factor subsumed by Tobacco Political Activity in Figure 8

~ One factor subsumed by State Priorities in Figure 8

**TABLE 7: Factors and Corresponding Measures Tested in Quantitative Analysis, Including Data Source and Expected Relationship with Dependent Variable**

<i>Factor</i>	<i>Measure</i>	<i>Data Source</i>	<i>Direction of Relationship</i>
<b>Tobacco Control Advocacy</b>	CIGEXCISE - State cigarette excise tax per pack as of 12/31/00	CDC, 2001	+
	MINOR - Number of provisions in state law restricting minors' access to tobacco as of 12/31/98	NCI, 1999	+
<b>Public Opinion</b>	ATTITUDE - Attitudes About Smoking Bans in Public Places, Tobacco Supplement to Current Population Survey, 1998-99	NCI, 1999	+
	LIBERAL - Index of citizen liberalism in 1999	Berry et al, 1998; Ethridge, 2001	+
	RURAL - Percent of population living in rural areas in 2000	Census Bureau, 2000	-
	CIGPACKS - Packs of cigarettes sold per capita in 2000	CDC, 2001	-
	RATE - Adult smoking rate per 100,000 people, Averaged over 1996-2000	CDC, 2001	-
<b>State Priorities</b>	TAXFAIR - Tax fairness, rating of fiscal year 2002 budgets	Barrett et al, 2003	+
	GOVT - Index of government liberalism in 1999	Berry et al, 1998; Ethridge, 2001	+
	WOMEN - Percent of state legislators who are women in 2000	NCSL, 2001	+
<b>Governor</b>	GOVPOWER - Governors' Authority Index in 2000	Beyle, 2000	+
	GOVPARTY - Party of Governor in 2000	NCSL, 2001	+
<b>Budget Situation</b>	BALANCE - Balance as a Percentage of Expenditures, Below 5% in FY01 or FY02	NASBO, 2002	-
	CUTS - Cuts to Enacted FY01 Budgets	NASBO, 2002	-
	EXPEND - State Budget Expenditures per capita in 2000	NASBO, 2002	+
<b>Tobacco Economy</b>	GSP - Tobacco contribution to state economy, tobacco gross state product in 2000	Department of Commerce, 2000	-
<b>Tobacco Industry Political Activity</b>	LOBBY - Tobacco Institute lobbying budget – continuous per capita amount averaged over 1991-1997 excluding 1993	Morley et al., 2002	-
	PREEMPT - State laws preempting stricter local tobacco control ordinances	CDC, 2001	-

**TABLE 8: Coefficients and Standard Errors from Regression Analyses**

<b>Variable Name</b>	<b>Factor</b>	<b>Variable Form and Range</b>	<b>Bivariate Analysis</b>	<b>Final Model</b>
<b>GSP</b>	Tobacco Economy	Ordinal	-.66 (.15)***	-.58 (.13)***
<b>GOVPOWER</b>	Governor	Continuous	.50 (.31)*	.48 (.25)**
<b>PREEMPT</b>	Tobacco Industry	Binary (1=present)	-.81 (.25)***	-.47 (.20)***
<b>GOVPARTY</b>	Governor	Binary (1=Dem/Ind)	.42 (.27)*	.41 (.21)**
<b>LIBERAL</b>	Public Opinion	Continuous	.02 (.01)***	.02 (.01)***
<b>BALANCE</b>	Budget Situation	Binary (1=below5%)	-.53 (.28)**	
<b>WOMEN</b>	State Priorities	Percent	.04 (.02)***	
<b>CIGEXCISE</b>	TCP Advocacy	Continuous dollars	1.24 (.46)***	
<b>CIGPACKS</b>	Public Opinion	Count sold per cap	-.01 (.01)***	
<b>LOBBY</b>	Tobacco Industry	Log dollars per cap	.68 (.18)***	
<b>ATTITUDE</b>	Public Opinion	Percent	.05 (.02)***	
<b>EXPEND</b>	Budget Situation	Log dollars per cap	1.09 (.51)***	
<b>TAXFAIR</b>	State Priorities	Ordinal	.75 (.2)***	
<b>RATE</b>	Public Opinion	Rate per 100,000 people	-.04 (.05)	
<b>GOVT</b>	State Priorities	Continuous	.006 (.01)	
<b>RURAL</b>	Public Opinion	Percent	.0005 (.01)	
<b>CUTS</b>	Budget Situation	Binary (1=FY01 budget)	-.32(.28)	
<b>MINOR</b>	TCP Advocacy	Ordinal	.03 (.07)	

\*\*\* p<0.05

\*\* p<0.10

\* p<0.20

**TABLE 9: Correlation Matrix of All Variables**

	logfy02pc	gsp	preempt	lobby	govpower	govparty	minor
logfy02pc	1.0000						
gsp	-0.5338	1.0000					
preempt	-0.4127	0.1965	1.0000				
lobby	0.5056	-0.6283	-0.1687	1.0000			
govpower	0.2375	0.0130	-0.0696	0.1308	1.0000		
govparty	0.2228	-0.0646	-0.0707	0.0607	-0.3213	1.0000	
minor	0.0460	-0.1654	-0.2667	0.2418	-0.3283	0.1477	1.0000
excise	0.3683	-0.2776	-0.1858	0.2765	0.2601	0.0572	0.2177
expend	0.2909	-0.1106	0.0896	0.4674	0.1812	0.1756	-0.0208
cuts	-0.1770	0.2261	0.1566	-0.1774	-0.2174	0.2577	0.0381
balance	-0.2641	0.0423	0.2375	-0.2666	-0.2045	-0.0436	0.0787
govt	0.1640	0.1880	-0.0925	-0.0171	-0.3231	0.7371	0.1666
taxfair	0.4826	-0.4671	-0.0174	0.5907	0.1487	0.1762	-0.0720
women	0.3411	-0.4339	-0.1805	0.2599	0.0309	0.0579	0.2251
liberal	0.3603	0.0177	-0.1723	0.1265	0.2224	0.0441	-0.0074
attitude	0.3445	-0.6030	-0.2747	0.4674	0.0345	0.0320	0.3276
rate	-0.1490	0.4077	0.1401	-0.2242	-0.2114	0.1074	-0.1555
rural	-0.0149	0.0374	-0.0160	0.1912	-0.2046	0.2719	0.0782
packs	-0.2506	0.2889	0.1698	-0.1850	-0.3648	0.2304	-0.0056

	excise	expend	cuts	balance	govt	taxfair	women
excise	1.0000						
expend	0.4002	1.0000					
cuts	-0.3181	0.0327	1.0000				
balance	0.0451	-0.2741	-0.1462	1.0000			
govt	0.2021	0.2474	0.1759	-0.1067	1.0000		
taxfair	0.2416	0.4887	-0.1544	-0.1974	0.0868	1.0000	
women	0.4191	0.0705	-0.2187	0.0446	0.1255	0.1327	1.0000
liberal	0.4633	0.2079	-0.0928	-0.1563	0.5315	0.2121	0.2724
attitude	0.6191	0.0694	-0.4204	-0.0837	0.0791	0.3117	0.4989
rate	-0.3845	0.0615	0.4081	0.0531	0.0420	-0.2249	-0.2817
rural	-0.4865	-0.1130	0.3290	-0.0247	0.0059	0.1620	-0.3503
packs	-0.6141	-0.1491	0.4004	0.1663	0.0431	-0.2022	-0.3895

	liberal	attitude	rate	rural	packs
liberal	1.0000				
attitude	0.2512	1.0000			
rate	-0.2073	-0.8173	1.0000		
rural	-0.2576	-0.3330	0.3604	1.0000	
packs	-0.3488	-0.7195	0.7382	0.5282	1.0000



**TABLE 10: Final Multiple Linear Regression Model**

Source	SS	df	MS	Number of obs = 50		
Model	24.7085663	5	4.94171325	F( 5, 44) =	10.41	
Residual	20.8947914	44	.474881623	Prob > F	=	0.0000
				R-squared	=	0.5418
				Adj R-squared	=	0.4897
Total	45.6033577	49	.930680768	Root MSE	=	.68912

logfy02pc	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
gsp	-.5803161	.1298007	-4.47	0.000	-.8419121	-.31872
liberal	.0182752	.0073653	2.48	0.017	.0034314	.0331189
preempt	-.4673714	.2045818	-2.28	0.027	-.8796789	-.0550639
govpower	.481512	.2497763	1.93	0.060	-.0218791	.9849031
govparty	.4077417	.2096298	1.95	0.058	-.0147395	.8302228
_cons	-1.058744	.9087413	-1.17	0.250	-2.890192	.7727039

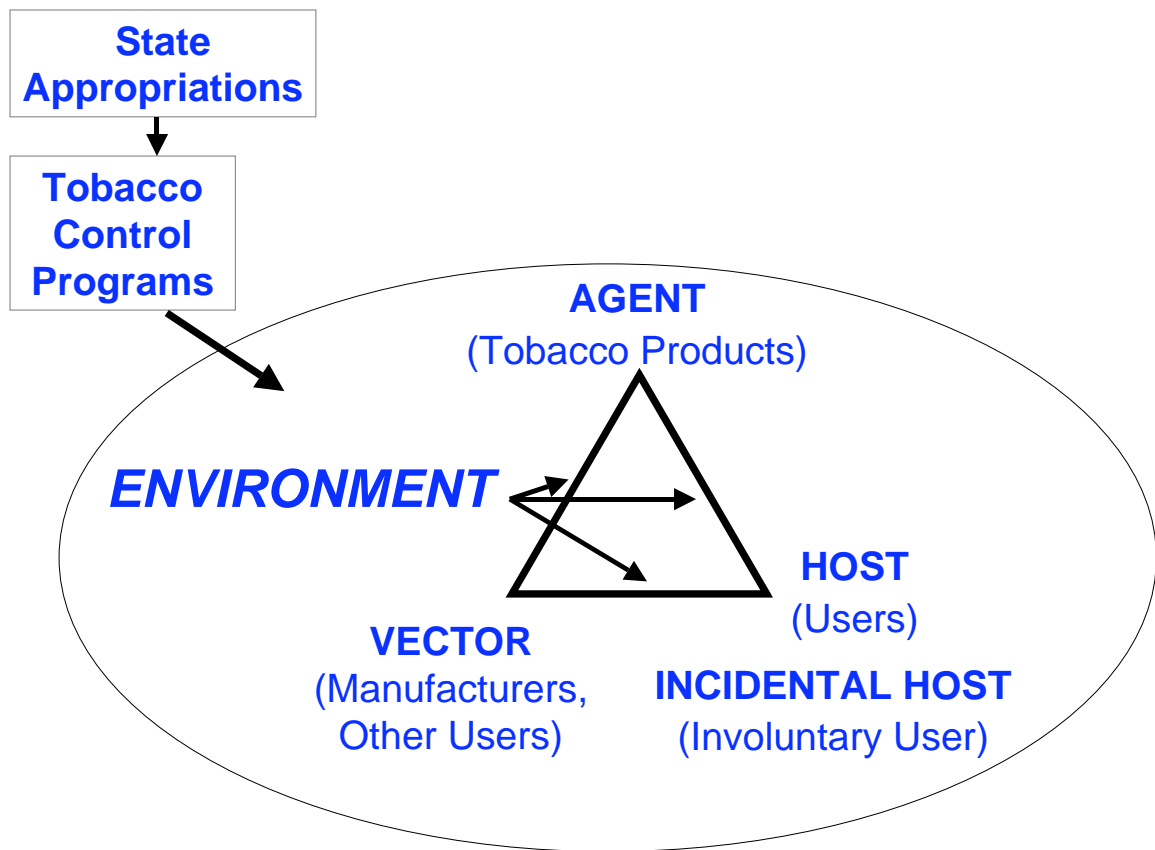
**TABLE 11: Descriptive Statistics of Variables in Final Model**

Variable	N	Mean	Std. Dev.	Min	Max
-----+-----					
<b>Dependent Variable:</b>					
<b>Natural Log of</b>					
<b>Per Capita FY02</b>					
<b>Tobacco Control</b>					
<b>Appropriations</b>					
	50	1.033	0.964	-1.10	2.96
<b>Independent Variables:</b>					
<b>Governor Authority</b>					
<b>Index in 2000</b>					
	50	3.484	0.424	2.70	4.30
<b>Citizen Liberalism</b>					
<b>Index in 1999</b>					
	50	50.414	14.005	23.97	83.06
<b>Tobacco GSP in 2000</b>					
Absent	24	1.528		-0.26	2.96
Present	26	0.575		-1.11	2.37
<b>Preemptive Law in 1999</b>					
Absent	23	1.471		-0.69	2.96
Present	27	0.659		-1.11	2.07
<b>Governor Party in 2000</b>					
Rep	30	0.866		-1.11	2.37
Dem/Ind	20	1.283		-0.74	2.96

**TABLE 12: State-By-State Data on Measures in Final Regression Model**

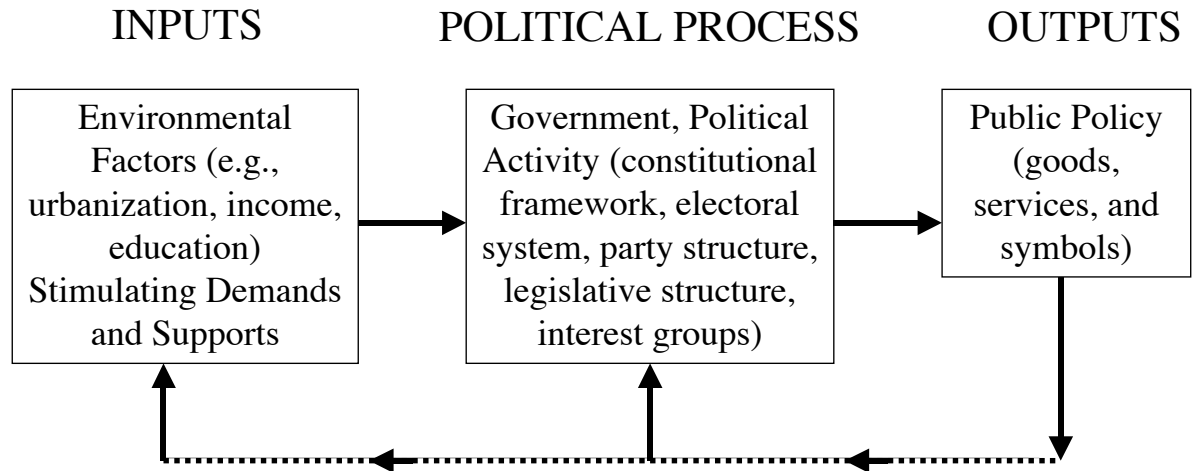
	state	logfy02pc	fy02pc	gsp	preempt	liberal	govpower	govparty
1.	Alabama	-.6915484	.5008	2	0	44.07849	3.0	1
2.	Alaska	2.056109	7.8155	0	0	26.68189	3.7	1
3.	Arizona	1.838229	6.2854	0	0	40.24728	3.5	0
4.	Arkansas	1.664134	5.2811	0	0	45.95308	3.0	0
5.	California	1.403348	4.0688	1	1	56.95569	3.4	1
6.	Colorado	1.244126	3.4699	0	0	49.58817	3.6	0
7.	Connecticut	-.2801108	.7557	2	1	67.09787	3.7	0
8.	Delaware	2.074467	7.9603	0	1	57.94151	3.4	1
9.	Florida	.6496132	1.9148	2	1	49.33584	3.2	0
10.	Georgia	1.071549	2.9199	2	0	48.31397	3.0	1
11.	Hawaii	2.960752	19.3125	0	0	82.49681	4.0	1
12.	Idaho	.7243551	2.0634	0	0	26.19676	3.5	0
13.	Illinois	1.409058	4.0921	1	1	58.03962	4.0	0
14.	Indiana	.0958555	1.1006	1	1	48.97993	3.0	1
15.	Iowa	1.335659	3.8025	0	1	48.29425	3.9	1
16.	Kansas	.0304322	1.0309	0	0	37.31558	3.7	0
17.	Kentucky	.1951555	1.2155	2	1	26.48109	3.6	1
18.	Louisiana	-.6470273	.5236	1	1	33.48349	3.1	0
19.	Maine	2.397504	10.9957	0	0	62.74729	3.4	1
20.	Maryland	1.843814	6.3206	1	0	70.68712	4.2	1
21.	Massachusetts	1.767091	5.8538	0	0	83.06903	3.7	0
22.	Michigan	-.4503579	.6374	1	1	51.44209	3.8	0
23.	Minnesota	1.814352	6.1371	0	0	52.36714	3.8	1
24.	Mississippi	2.072266	7.9428	0	1	35.76762	3.1	1
25.	Missouri	1.436916	4.2077	1	0	47.68109	3.4	1
26.	Montana	.7472091	2.1111	0	1	44.46526	3.7	0
27.	Nebraska	1.619547	5.0508	1	0	35.58889	3.7	0
28.	Nevada	.9263202	2.5252	1	1	57.2574	3.0	0
29.	New Hampshire	1.271388	3.5658	0	0	33.66592	2.8	1
30.	New Jersey	1.350123	3.8579	1	0	67.92778	4.1	0
31.	New Mexico	1.338259	3.8124	0	1	50.78128	3.3	0
32.	New York	.8958431	2.4494	2	1	68.72305	3.9	0
33.	North Carolina	-.7377263	.4782	2	1	51.3474	3.0	1
34.	North Dakota	1.662372	5.2718	0	0	62.56667	3.9	0
35.	Ohio	2.371495	10.7134	1	0	51.57756	4.0	0
36.	Oklahoma	.0964005	1.1012	1	1	23.97093	2.8	0
37.	Oregon	1.338914	3.8149	0	1	58.77426	3.2	1
38.	Pennsylvania	1.256897	3.5145	1	1	54.62812	4.0	0
39.	Rhode Island	1.456846	4.2924	0	0	71.8825	2.7	0
40.	South Carolina	-.2109679	.8098	1	1	53.59759	2.9	1
41.	South Dakota	1.782551	5.945	0	1	47.714	3.9	0
42.	Tennessee	-1.108966	.3299	2	1	47.62665	3.6	0
43.	Texas	-.2192761	.8031	1	0	41.34668	3.0	0
44.	Utah	-.2617545	.7697	0	1	38.0126	4.0	0
45.	Vermont	2.684358	14.6488	0	0	71.65363	2.7	1
46.	Virginia	.8725477	2.393	2	1	45.02449	3.5	0
47.	Washington	1.253391	3.5022	0	1	46.8365	3.3	1
48.	West Virginia	1.485393	4.4167	2	0	62.1988	4.3	0
49.	Wisconsin	.3311726	1.3926	1	1	52.22836	3.6	0
50.	Wyoming	1.434799	4.1988	0	1	30.06387	3.6	0

FIGURE 1: Public Health Model of Tobacco Control Programs



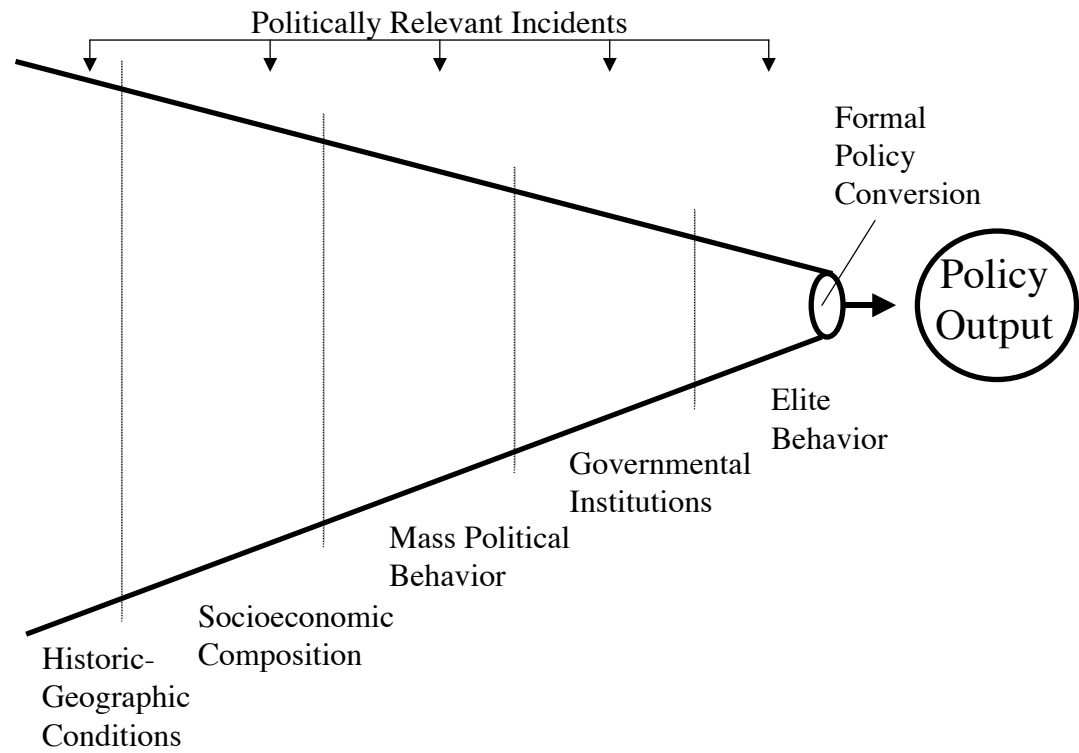
Adapted from: Giovino, 2002

FIGURE 2: Model of Policy Process



Source: Hofferbert, 1974

FIGURE 3: Model for Comparative Study of Policy Output



Source: Hofferbert, 1974

FIGURE 4: New Factors Generated Across Interviews

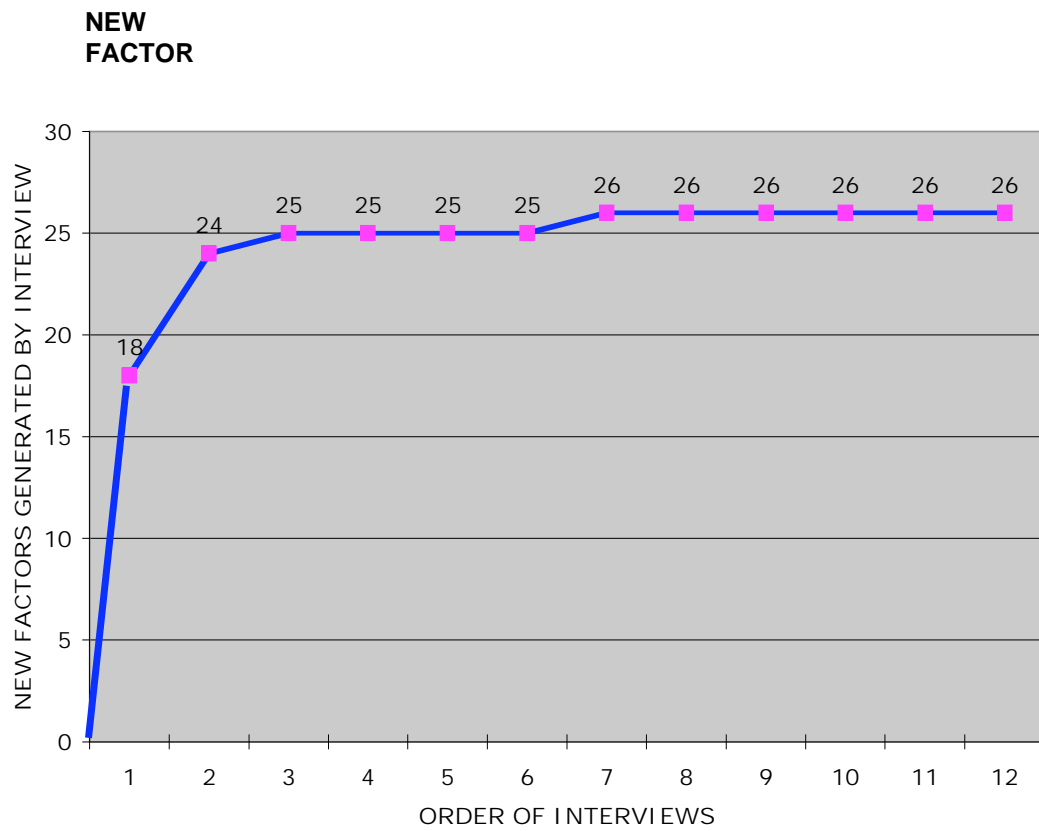


FIGURE 5: Average Ratings of Importance on 8 point scale

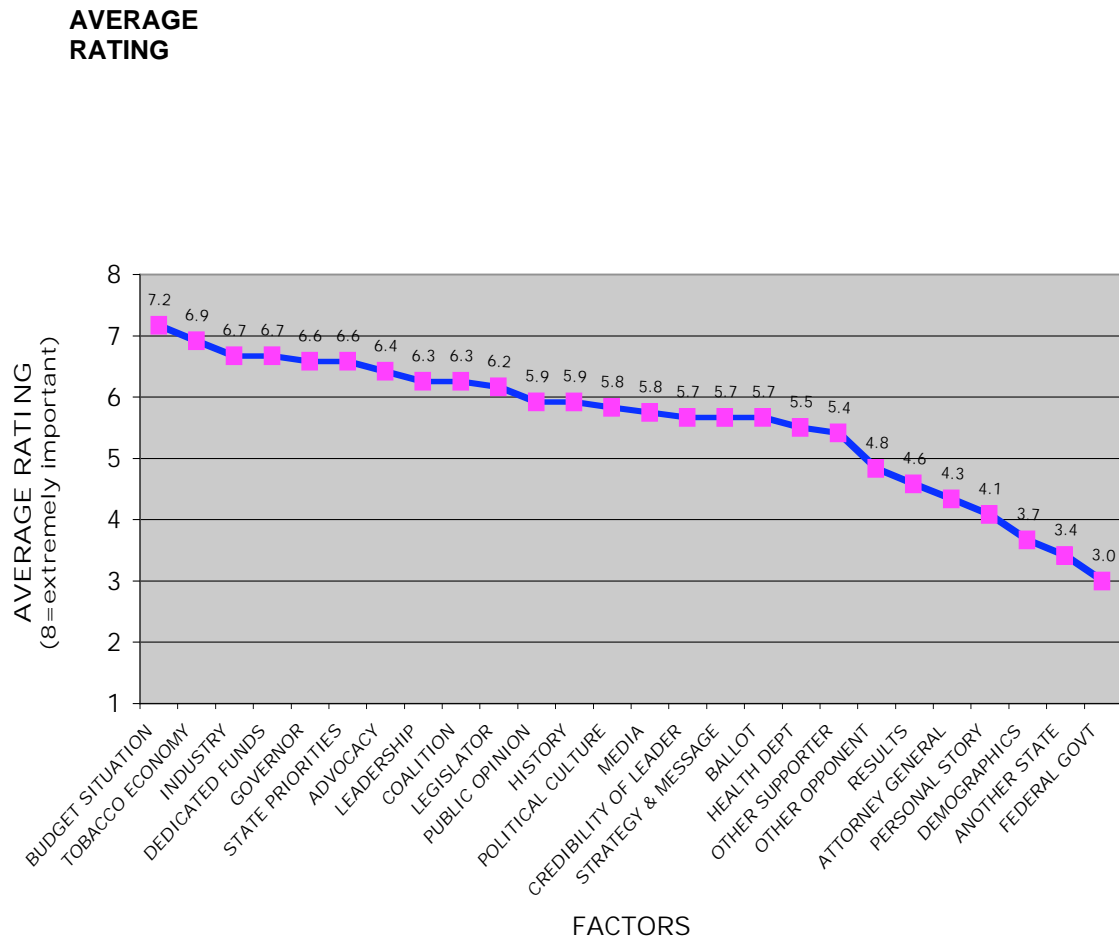




FIGURE 6: Summary Value of Top 10 Rankings

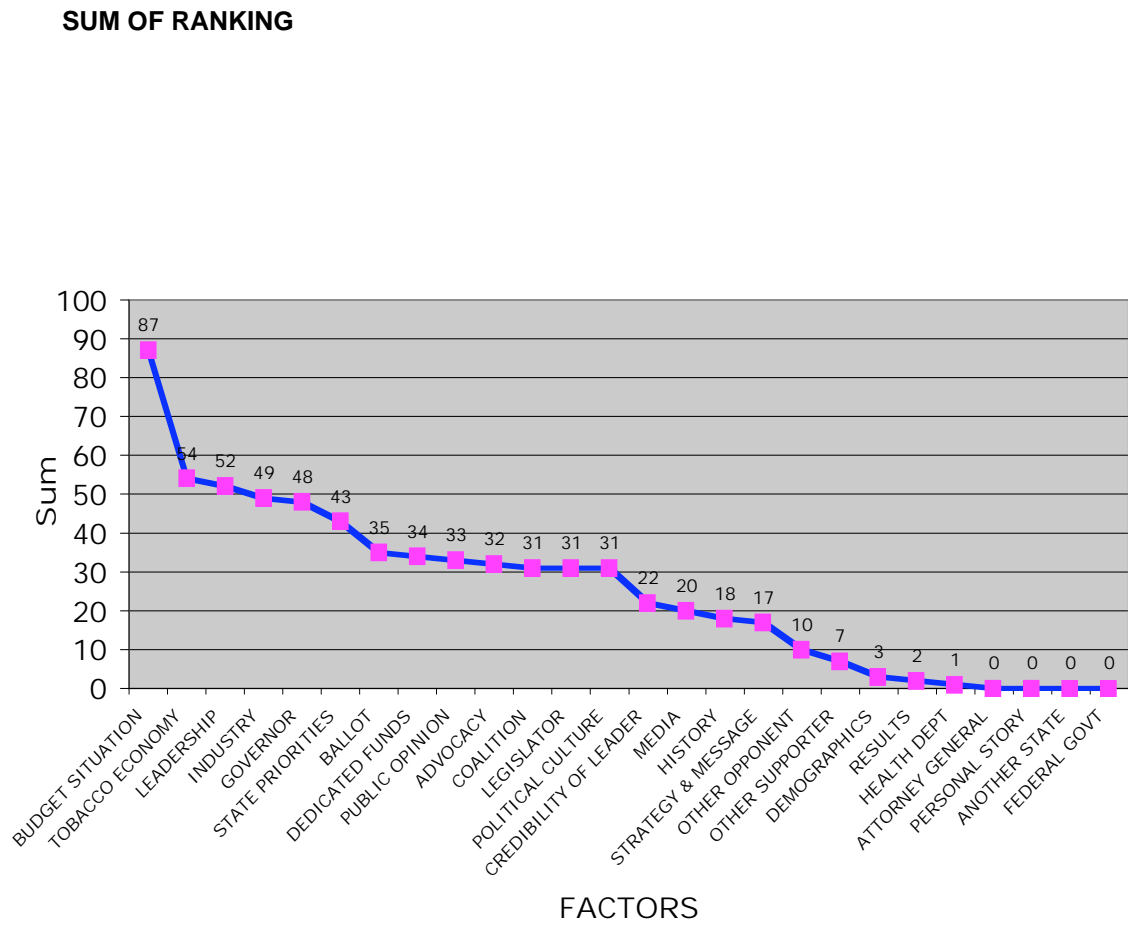


FIGURE 7: Percentage of Participants Selecting Factor for Top 10 Most Important

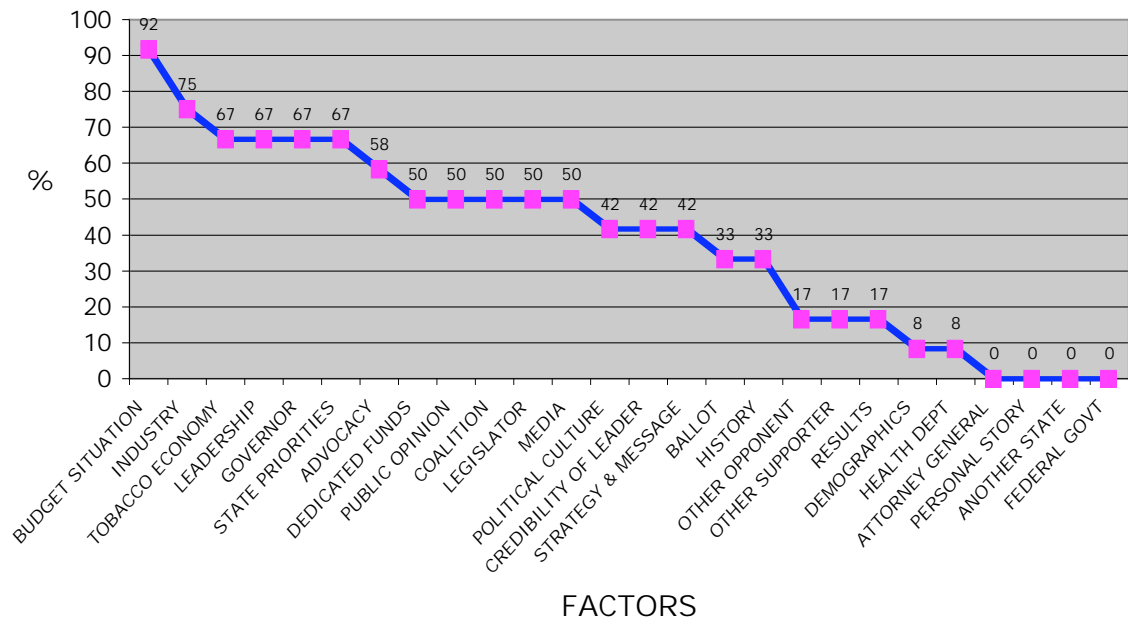
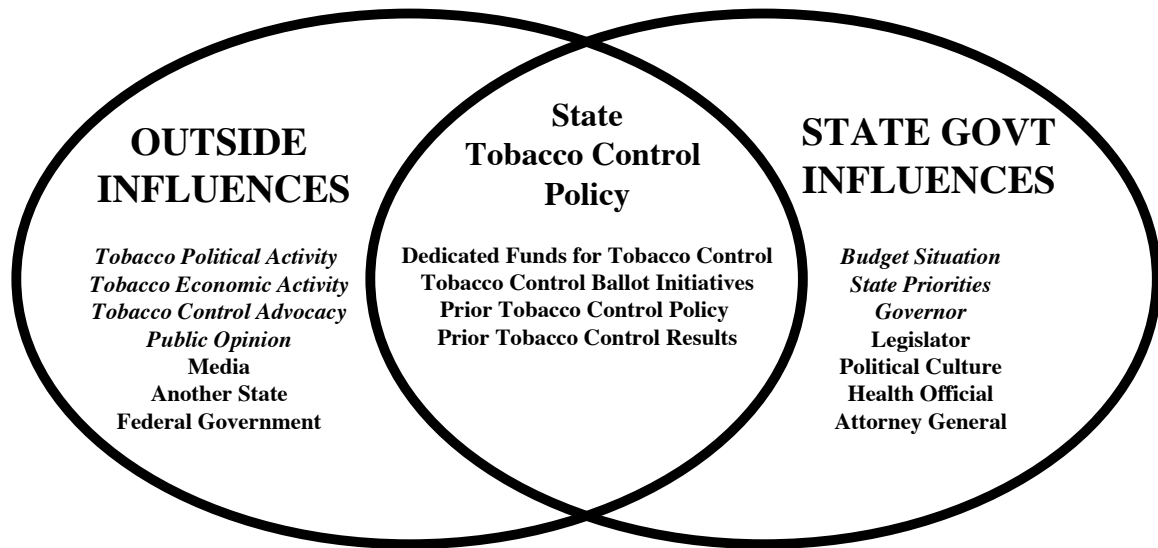
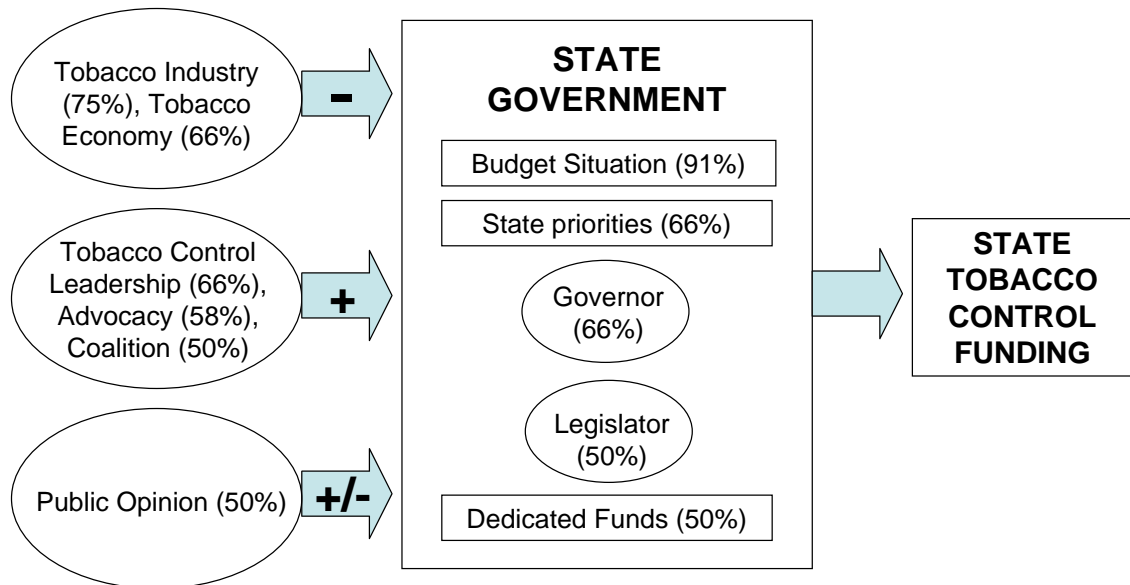


FIGURE 8: Comprehensive Framework of State Tobacco Control Policy



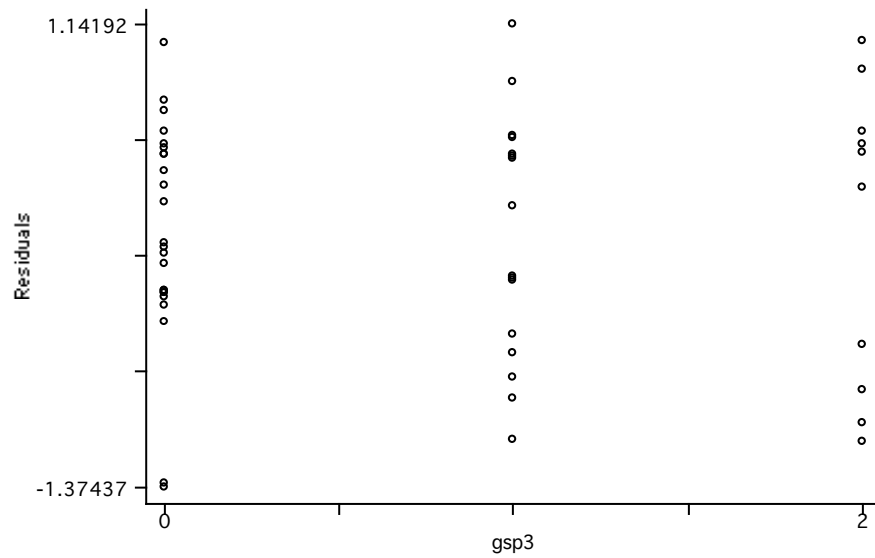
Notes: Factors in *italics* were tested in Study 2. See Table 1 for definitions of factors and Table 2 for explanations of combined factors.

FIGURE 9: Major Influences on State Tobacco Control Funding



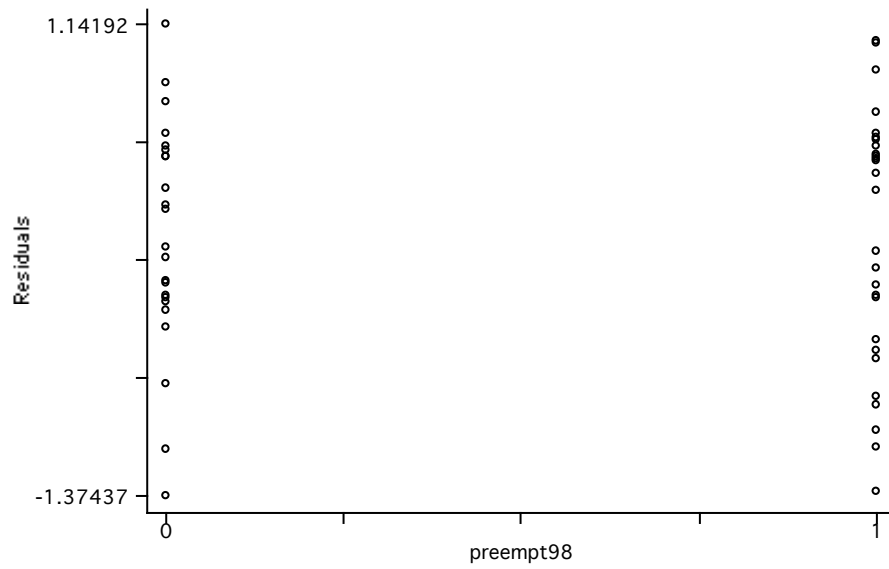
Notes: Percent represents respondents who selected factor for top ten most important.

FIGURE 10: Scatterplot of Residuals and Tobacco Gross State Product



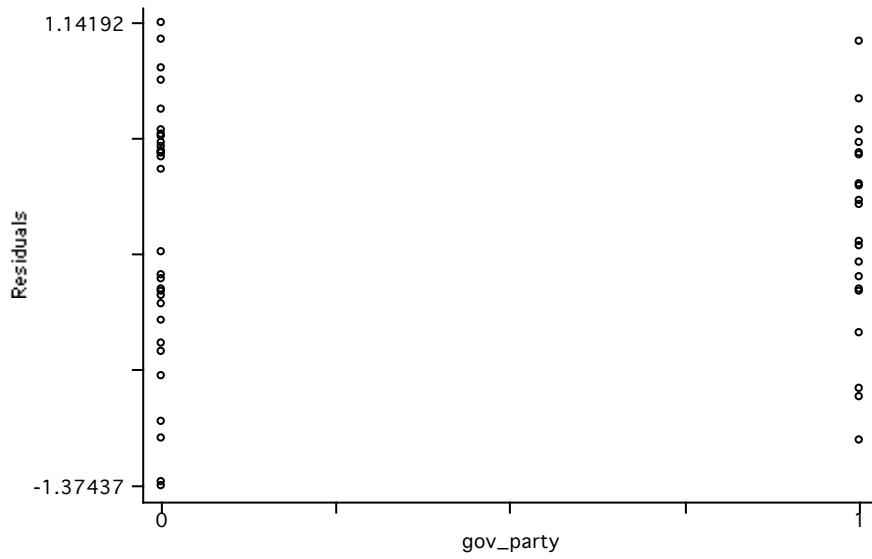
Note: GSP3 represents three values of Gross State Product (GSP) from Tobacco  
0=No Tobacco Gross State Product  
1=Tobacco Gross State Product greater than zero but less than 0.03% of Total GSP  
2=Tobacco Gross Product greater than or equal to 0.03% of Total GSP

FIGURE 11: Scatterplot of Residuals and Preemptive State Laws



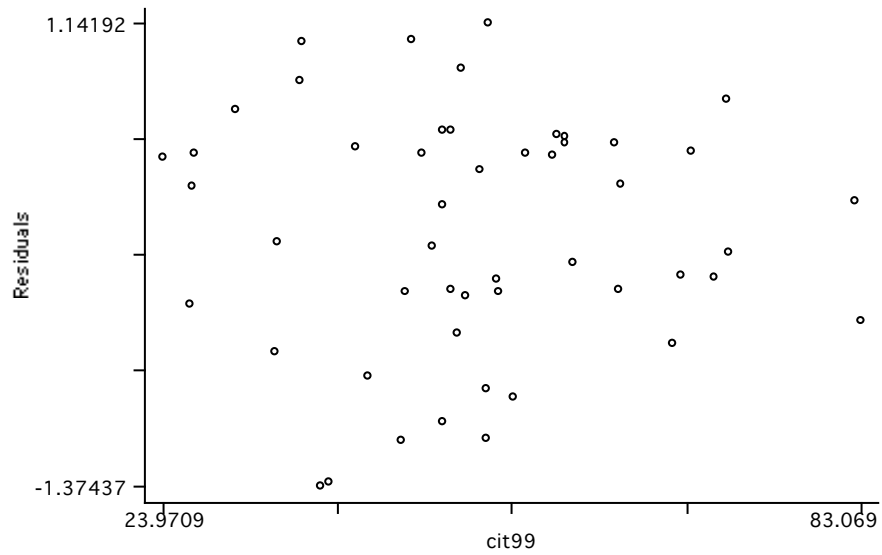
Note: PREEMPT98 is the presence (1) or absence (0) of a state law preempting stricter local tobacco ordinances as of 1998

FIGURE 12: Scatterplot of Residuals and Governor's Party



Note: GOV\_PARTY indicates Governors with Democratic or Independent party affiliation (1) or Republican party affiliation (0)

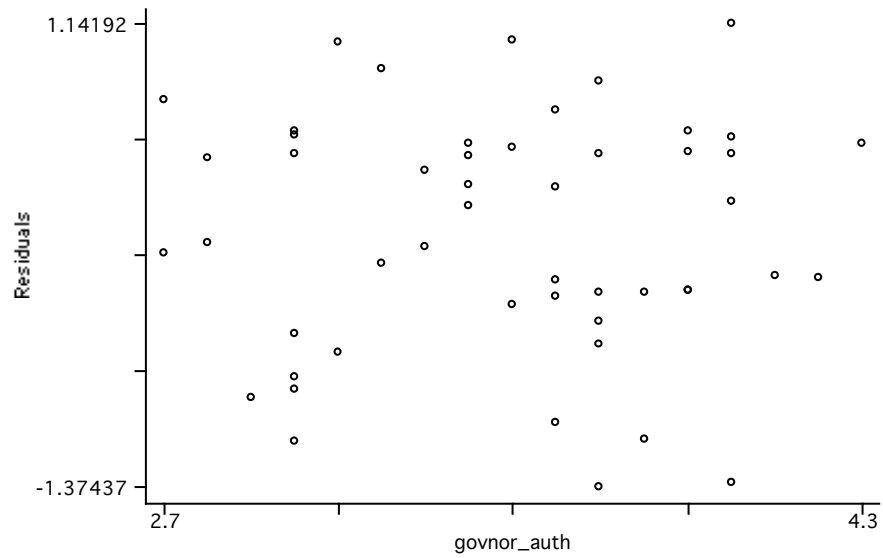
FIGURE 13: Scatterplot of Residuals and Citizen Liberalism Index



Note: CIT99 represents the liberalism of the electorate according to an index compiled by Berry et al., 1998 and updated in 1999

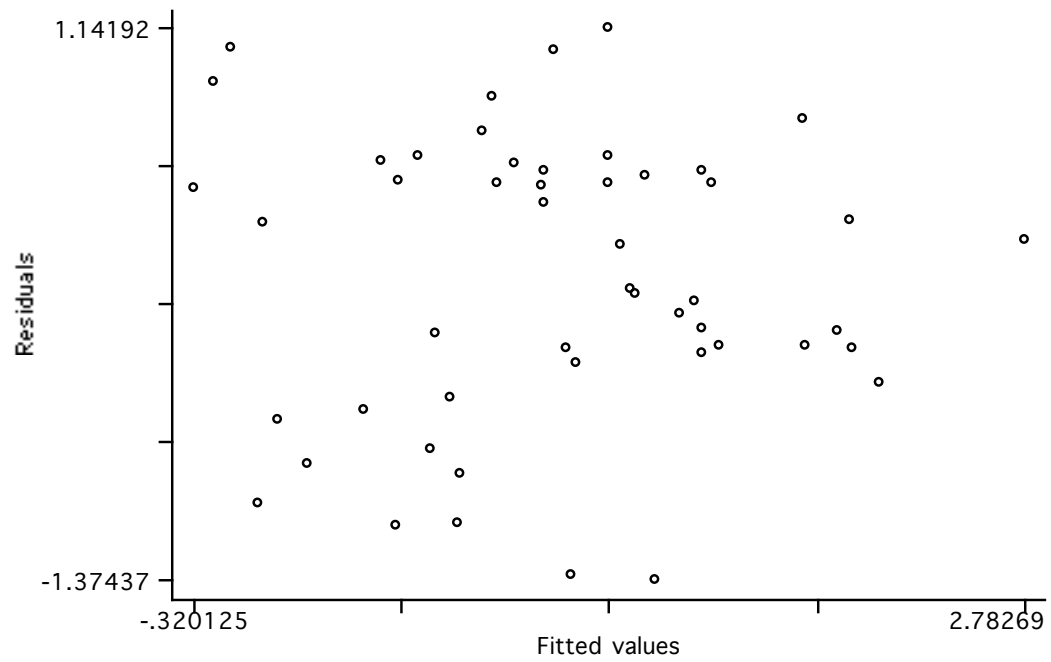


FIGURE 14: Scatterplot of Residuals and Governor Authority Index



Note: GOVNOR\_AUTH represents the degree of authority the Governor has from an index compiled by Beyle, 2000.

FIGURE 15: Scatterplot of Residuals and Predicted Values



Note: Fitted values from final Multiple Linear Regression model